# THE IRON AGE

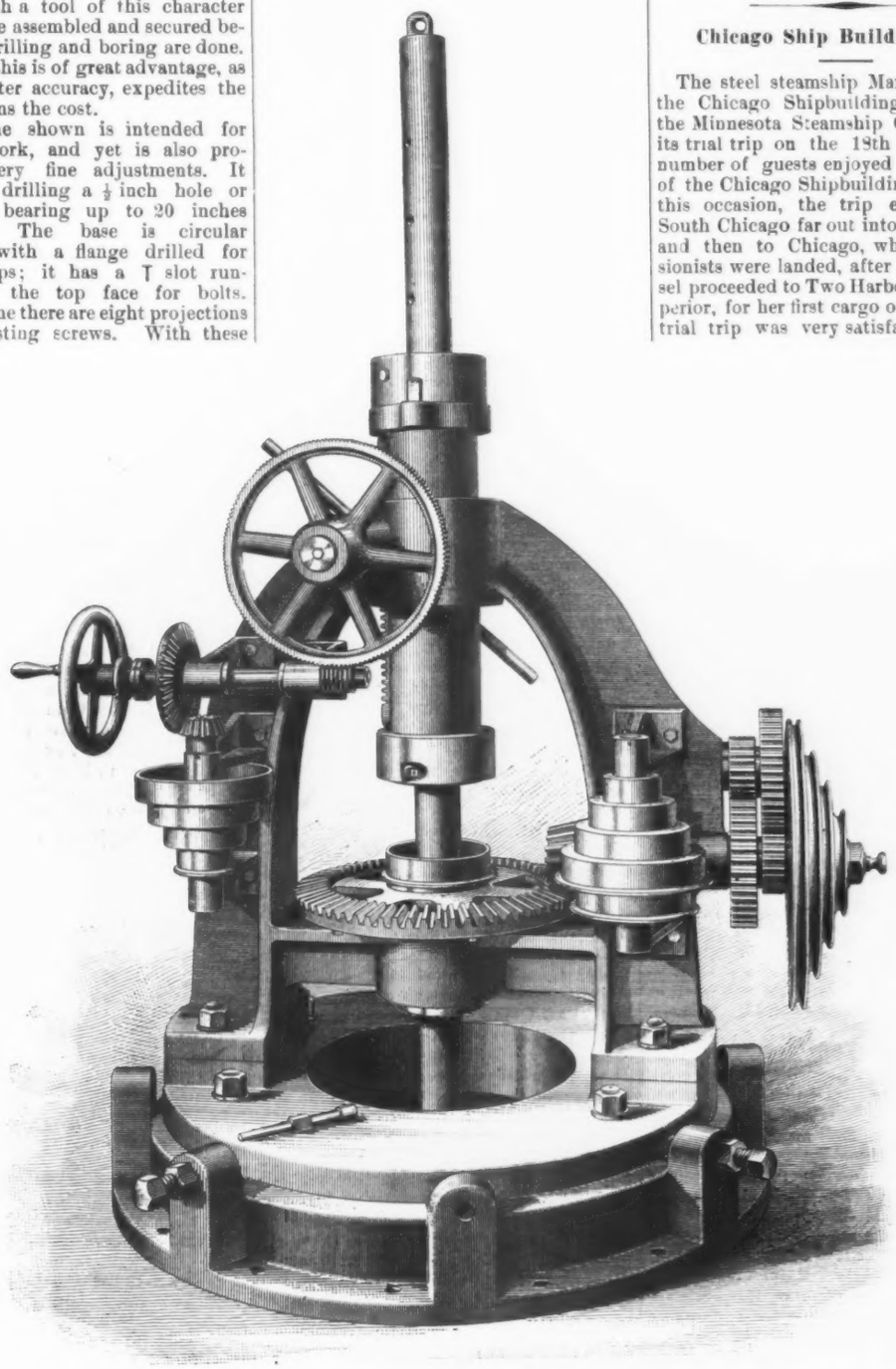
THURSDAY, AUGUST 25, 1892.

### Rudder Pintle Boring Machine.

Our illustration represents a new portable boring machine designed by the Newport News Ship Building and Dry Dock Company of Newport News, Va., and built for them by Pedrick & Ayer of Philadelphia. With a tool of this character the parts can be assembled and secured before the final drilling and boring are done. In many cases this is of great advantage, as it insures greater accuracy, expedites the work and lessens the cost.

The machine shown is intended for the heaviest work, and yet is also provided with very fine adjustments. It is capable of drilling a $\frac{1}{2}$ inch hole or boring out a bearing up to 20 inches in diameter. The base is circular and finished with a flange drilled for bolts or clamps; it has a T slot running around the top face for bolts. Around the same there are eight projections carrying adjusting screws. With these the frame can be very finely adjusted to centers or lines. The top piece, carrying the frame the bolts pass through, is slotted, allowing adjustments to be made and providing for the clamping of the whole together as one solid casting.

The balance of the machine is, in most respects, similar to a very heavy geared drill press, having a long spindle $3\frac{1}{4}$ inches in diameter, with a large taper hole in its end for drill sockets or smaller boring bars. It is driven by a pair of bevel gears, about 5 to 1, driven by back gearing similar to a lathe, or driven direct for fast speeds. It has power and hand feed, with quick return. The spindle is so arranged that it has no wear, except the sliding movement, as all revolving parts have sleeves that revolve with the bar which passes through them. The bar has large taper holes about 6 inches apart drilled in the upper end to allow a great range of adjustment; it has also an eyebolt in the end for lifting out and handling. This particular machine has a cone on the driving shaft for a large rope belt, and as the top swivels on the lower base, any angle for driving can be obtained. The machine weighs 6000 pounds.



RUDDER PINTLE BORING MACHINE.

### Chicago Ship Building News.

The steel steamship Maritana, built by the Chicago Shipbuilding Company for the Minnesota Steamship Company, made its trial trip on the 18th inst. A large number of guests enjoyed the hospitality of the Chicago Shipbuilding Company on this occasion, the trip extending from South Chicago far out into Lake Michigan and then to Chicago, where the excursionists were landed, after which the vessel proceeded to Two Harbors, on Lake Superior, for her first cargo of iron ore. The trial trip was very satisfactory, the machinery working smoothly in every respect. The Maritana is at present the largest vessel on the lakes, having a carrying capacity of over 4500 net tons of ore. Her dimensions are 353 feet over all, 330 feet keel and 45 feet beam, and she is supplied with triple expansion engines, expected to develop a speed of 15 to 16 miles per hour.

Every approved device, operated by electricity or steam, has been introduced in her equipment. The accommodations for officers and crew are unusually commodious and comfortable, while elegantly appointed state rooms have been built on the forward deck for the accommodation of the steamship company's occasional guests. The vessel in its completed state represents an investment of $250,000.

The trial trip of the Maritana was more than such an occasion would ordinarily indicate. It was also the celebration by the Chicago Shipbuilding Company of the progress made in the establishment of this new Chicago enterprise on a firm and evidently prosperous foundation. The company is no longer a branch of the Globe Iron Works of Cleveland. The controlling interest in the stock has passed into Chicago hands, but W. I. Babcock continues as manager. The late Emmons Blaine was president of the company, and the vacancy thus left is expected to be shortly filled by the election of W. L. Brown, of the firm of Pickands, Brown & Co. More work is in sight for the company at the present time than at any period since the yard was started. In addition to a large steel steamer for the America-Brazil syndicate now rapidly approaching completion, a contract has just been closed for a 300-foot steel steamer for C. W. Elphicke, Arthur Orr and W. L. Brown to cost $170,000. Two or three other contracts are under consideration, one of which is for a steel steam yacht, 185 feet long, for Gen. Joseph T. Torrence. Active operations at the shipyard during the winter are pretty well assured.

Improvements of an important character are contemplated in the company's plant. A dry dock, 450 feet long by 125 feet wide and 30 feet deep, is to be constructed and machine shops for the manufacture of marine engines are to be equipped with the necessary tools and appliances. The company are fortunate in securing and retaining the services of Manager Babcock, who has conducted operations with signal ability.

## The Fort Payne Fiasco.

[From the Portland, Me., *Press*, August 11.]

The announcement that W. R. Sheldon has been appointed receiver of the Fort Payne Coal and Iron Company marks a crisis in that memorable and gigantic financial enterprise.

It is probably not far from the truth to say that upward of $2,000,000 has been taken out of New England by that ill-starred enterprise. President W. P. Rice says that this appointment of a receiver means a total loss to the 1750 stockholders of all the money they have put in, and Mr. Rice's statement is probably accurate.

The story of this Fort Payne enterprise reads like a chapter in romance. The central figure is Wendell P. Rice, whose meteoric financial career so dazzled New England that she parted with millions of her hard-earned dollars at his suggestion.

Rice was originally a Maine man, son of a former Warden of the Maine State Prison. He had a successful connection with the management of the State Prison of Vermont, and thus obtained a large acquaintance throughout New England. He went to Kansas City in the boom days and made at once some very profitable real estate ventures. With the money thus obtained, and with more money that New England friends were willing to trust to his care, he organized the Union Investment Company of Kansas City, and also about 20 national banks in the State of Kansas, of all of which he was president. The Union Investment Company dealt in Kansas City real estate, and, while the boom times were on, divided some large dividends among Rice's New England's friends who had backed the enterprise. Large dividends always delight investors, and the man under whose management they are obtained is a *persona grata* with capitalists the world over. Mr. Rice's reputation as a financier of capacity for the successful management of great enterprises was established with a certain class of New England investors.

Mr. Rice was not, however, the original projector of the Fort Payne enterprise. Some time previous to 1889 a Dr. J. M. Ford of Kansas City "discovered" the small town of Fort Payne, Ala., with its 500 people, and certain iron ore and coal in near proximity.

Dr. Ford was a "boomer," who was reputed to have made much money in the booms of Kansas. He associated with himself C. O. Godfrey of St. Louis, also a successful stormy petrel of the financial turmoil of Kansas. These men organized the Fort Payne Land & Improvement Company, and were the chief capitalists of the company. They acquired 32,000 acres of land in and about Fort Payne, the whole costing them, it is said, $150,000 or $200,000. They mined a little coal and iron, but not much.

Wendell P. Rice comes upon the scene about 1889, as an acquaintance and associate of Ford and Godfrey. He organizes the Fort Payne Coal & Iron Company, with a capital stock of $5,000,000. This new company was to buy the 32,000 acres of the Fort Payne Land & Improvement Company and develop a great iron industry. There were 50,000 shares of the Coal & Iron Company's stock at a par value of $100 per share. But it was advertised that the shares would be sold to investors at $25 each. Forty thousand shares were to be sold, leaving 10,000 shares in the treasury.

Rice's success in Kansas City had been phenomenal, and his name was a tower of strength to the new company. When the subscription books were opened in New England there was what might appropriately be called a rush of investors. The rush was greatest in Vermont, but Massachusetts, New Hampshire, Rhode Island and Maine were not far behind, in the order named. The stock was considerably over-subscribed for. Out of the 40,000 shares at $25 each Mr. Rice's company realized $1,000,000 in New England cash. How much of this was Maine money is not definitely known to many, but it would undoubtedly require six figures to express it.

Mr. Rice had associated with him as officers of the company some excellent men, like Col. J. W. Spaulding of Portland, Governor Goodell of New Hampshire, and ex-Governor Connor of Maine. They had not had experience in managing coal or iron industries, it is true, but they had been successful in their several walks of life, and stood, and still stand, deservedly high in the estimation of the people of New England. Their names gave people confidence that the affairs of the Fort Payne Company would be managed in good faith; and there seems to be no reason to doubt that those gentlemen used all the influence they could wield in favor of such management. Colonel Spaulding became president of the company.

When the million dollars had been realized from the sale of the 40,000 shares of stock in New England, the first thing done was the purchase of the 32,000 acres at Fort Payne of the Land & Improvement Company for the sum of $750,000. As the Land & Improvement Company is not supposed to have paid over $200,000 at most for the property, it will be seen that Messrs. Ford & Godfrey must have pocketed a snug margin.

After purchasing the land the Coal & Iron Company had about $250,000 remaining. With this it began extensive operations for the development of a great industrial city of the New South. The enterprise seemed an assured success. The stock, which had been sold at $25, went up to $50. A few cautious and cynical men sold out at this figure, thus doubling their money; but the mass of the 1800 investors held on.

The improvements which the company made were marvelous. They seemed almost like the creations of the genii of the "Arabian Nights." The $250,000 residue after the Land & Improvement Company was bought out was supplemented by a very large sum realized from the sale of land to private parties. There was a big influx of Northerners to the new town, and the company sold land at good terms. It must have realized large sums, for in the fall of 1890 the company advertised that Fort Payne had expended the astounding sum of over $3 000,000, and still had other developments in view.

The company built a fine hotel, costing $60,000, put in water works and electric lights at a cost of $40,000, built a railroad over a very difficult mountain 15 miles to the coal mine at a cost of $280,000, established fire clay works at a cost of $160,000, developed the coal mine at a cost of $70,000, coke ovens at a cost of $40,000, developed iron mines at a cost of $30,000, built stove works for $15,000 and expended $30,000 on streets. These are some of the things that were done.

The fame of Fort Payne spread abroad. In February, 1889, it had a population of 500 or 700 persons, while the census of 1890 showed 3500 people, and its valuation had sprung up from $100,000 in 1888 to $3,000,000 in 1890. Besides its mills and hotels there were many fine residences, conspicuous among them that of the Hon. W. P. Rice.

With the influx of so many people there came the inevitable real estate boom. Fort Payne real estate drew in many Maine investors who had not put anything into the Coal & Iron Company's stock. Some good judges who are in positions to know believe that fully as much Maine money has been lost in Fort Payne real estate as is lost through the stock of the company. Lots rose in value from $8 to $200 a front foot on Gault avenue, the principal street of the city. Many houses were erected for Northern men with the purpose of renting them to inhabitants of the city that was to be. Men were very busy buying land today selling it at an advance to-morrow.

"It all seems very ridiculous to you now," said a gentleman who was through it to the *Press*, "but the situation was such as to carry away the coolest New Englander. We went down from a land of snow and ice to a veritable Garden of Eden. We saw great mills going up, railroads building, mines being dug; people were flocking in, work was plenty and consequently money; every one was talking of the present and future prosperity of Fort Payne; hope was in the heart and confidence on the lips of every man. We had no doubt there was a place to become wealthy and happy, and we put our money in."

Moreover, the Fort Payne Coal & Iron Company was the prolific mother of other companies, which raised money on their own account to put it into Fort Payne industries. W. P. Rice, who was vice-president of the Coal & Iron Company, was also active in these companies, through whose agencies two blast furnaces were erected at a cost of $125,000 each, and a magnificent steel plant at a cost of over $200,000. All this money came from New England and much of it from Maine. These works are not involved with the Coal & Iron Company, and as they are fine plants it is thought that they may yet be worked to the profit of their owners. The steel plant is said to be one of the finest of its kind south of Pittsburgh.

When the Fort Payne boom was at its hight, Rice and Ford sailed for Europe. They went ostensibly in the interest of Fort Payne, but when they returned they launched that remarkable and now ridiculous financial bubble, the Cardiff (Tenn.) scheme. Many a Maine man remembers, with aching heart, the gorgeous trains of palace cars in which Rice hauled New England capitalists down to view that El Dorado in the mountains of Tennessee. Many thousands of dollars of Maine money went to Cardiff, and while people were watching that "dazzling enterprise," the more solid establishment of Fort Payne, with the $2,000,000 or more New England dollars invested in its stock and improvements, began to wane. The men who were speculating in real estate began in the year 1890 to find their holdings drag on the market. The mills and furnaces did not get to running as was expected. Some say that the coal was found to contain too much sulphur for the production of coke, and that the iron mines were not of such kind as to be worked at a profit. But this is probably a disputed point.

Wendell P. Rice has been quite as active in the failing days of Fort Payne as he was in the boom days. It was decided, when the Coal & Iron Company began to find itself in straitened circumstances, that the 10,000 shares of treasury stock should be sold. Rice had started in Boston the banking house of W. P. Rice & Co., and it was decided that he should be the selling agent at a commission, said to be fixed at $7 a share. About this time Fort Payne stock in the Boston market was at about 37, it having sagged back from the 50 which it reached in boom times. Yet it was considerably above the 25 at which it had been bought originally by the stockholders. The figure at which this treasury stock was to be sold was 37, and the problem before W. P. Rice & Co. was to put 10,000 shares (amounting at 37 to $370,000) upon the New England market without knocking the stock down disastrously. Rice was in the full tide of prosperity, reputed to be exceedingly wealthy, and full of confidence in his own ability to do anything financially. W. P. Rice & Co. decided to bolster up the market while they were selling the 10,000 shares for the company by taking themselves all Fort Payne stock offered at 37. This was expected to show their confidence in the stock and keep it up. It is said that Rice put out $230,000 in this effort to keep up the stock. He sold the treasury stock, but practically he bought it himself and much more with it. As soon as he ceased supporting it the stock began to fall, and was down to 10 at the annual meeting in February, 1891.

In the early part of 1891 the stockholders began to be uneasy. Rice had been vice-president and manager of the company. In the February meeting, 1891, he was tipped out and Governor Goodell of New Hampshire was put in his place. This movement against Rice was participated in by the Maine interests quite generally, the Portland interest being quite influential in that direction. Governor Goodell was a man of reputation for conservatism, and much was expected of him.

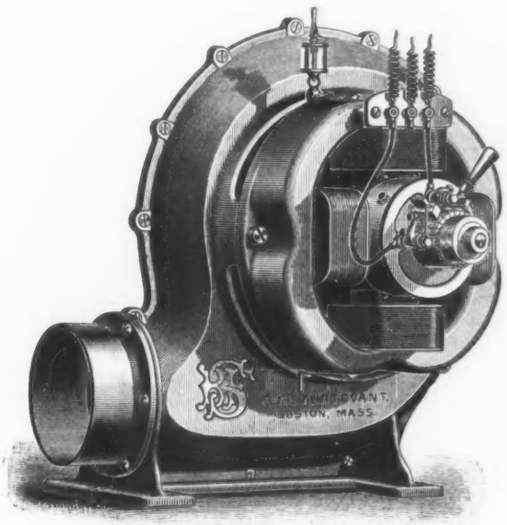
At this meeting, also, the company decided to raise money to carry on the enterprise by issuing $300,000 of bonds at 8 per cent. In all about $200,000 of these bonds were sold, a considerable sum having been placed in Portland.

With this money and Governor Goodell's administration considerable was expected by the stockholders. But they were disappointed. Fort Payne declined to advance. It even went the other way, and when the annual meeting of February, 1892, came around, there was a large body of dissatisfied stockholders.

Through this dissatisfaction Mr. Rice managed to get back again, although vigorously opposed by the Goodell influence.

During this year the affairs of the company have been going on under Rice's management, until the court has been asked to intervene and put the company into the hands of a receiver. This means that the bondholders may get their money, or a part of it, back; but the 17,000 stockholders must charge off to profit and loss what they put into the enterprise.

Fort Payne must have taken $2,000,000 from New England which will never come back. With Cardiff and other similar enterprises it will be a financial lesson for a generation.




THE STURTEVANT ELECTRIC FAN.

The Montreal *Journal of Commerce*, speaking of the imports into the Dominion from the United States and from Great Britain, compares the official returns of the foreign commerce of both countries and finds that "the balance of trade between us and Great Britain was last year $7,233,332 in our favor, while between us and the States it was $12,546,962 against Canada." The editor is encouraged in the belief that Canada's foreign trade is increasing in spite of the alleged efforts of the United States to close as many markets as possible against Canadian competition. The reference here is undoubtedly to the operation of the American treaties with the West India Islands and South America.

## The Sturtevant Electric Fan.

The B. F. Sturtevant Company of Boston, Mass., have recently brought out an electric fan driven by an electric motor of new design, specially arranged for fan propulsion and capable of extensive and continuous use without attention. It has been designed and is manufactured complete in every detail by the Sturtevant Company, and all parts are made on the interchangeable plan, so that repairs can be furnished quickly. A good idea of the general arrangement of this machine can be obtained from the accompanying engraving.

## An Important Coke Decision.

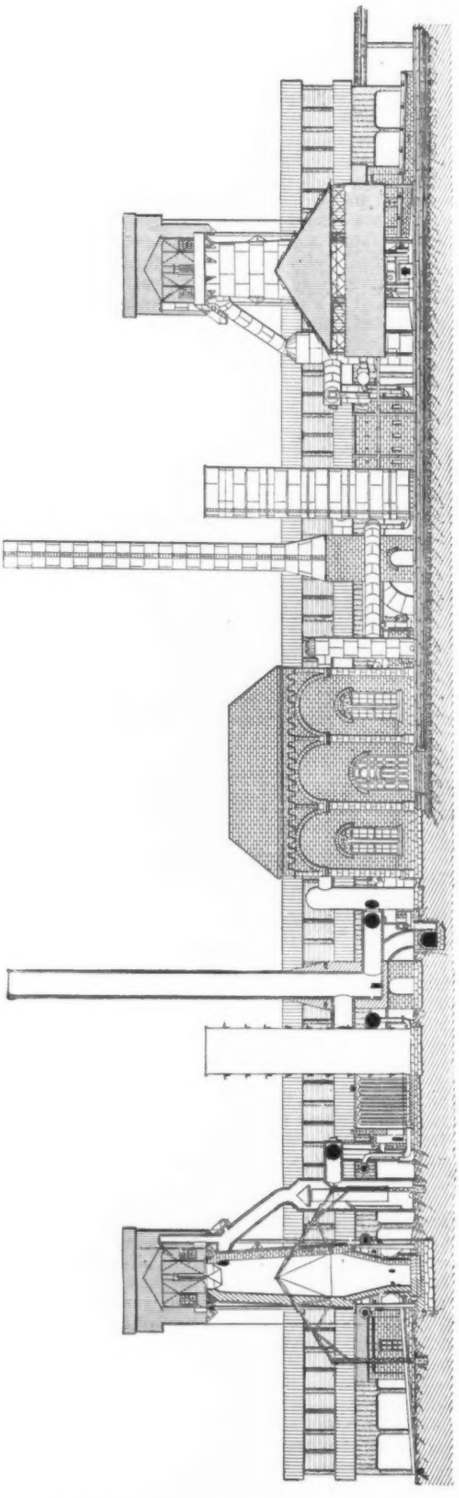
Last week, at Pittsburgh, Judge Buffington, of the United States Circuit Court, handed down a decision in a suit which had been pending for two years, and which will be of great interest to coke consumers, railroads and coke manufacturers. Evidence in the case showed that in 1890 and immediately after the great coke strike in the Connellsville region in 1889, McKeefrey & Hofius, operating the Seneca Furnaces at Leetonia, Ohio, entered suit against the H. C. Frick Coke Company of Pittsburgh, claiming $12,000 damages for failure of contract. It appears that McKeefrey & Hofius had a contract with the H. C. Frick Coke Company calling for the delivery at their blast furnace plant of 15 cars of coke per day. During the strike the Frick concern was unable to fulfill its agreement on account of no coke being made. At other periods when no strike was on, the railroads failed to furnish a sufficient number of cars. In periods of this kind, when trouble arose either from car shortages or strikes in the region, it was the custom of the H. C. Frick Coke Company to divide their product among their customers, giving to each one a share of the product in proportion to the amount called for by existing contracts. This plan, which to all appearances is a perfectly fair and legitimate one, did not meet the approval of McKeefrey & Hofius, and as a result they entered suit as noted above. The H. C. Frick Coke Company instituted cross action, claiming a sum for the coke furnished which the plaintiffs had not paid for equal to that asked by McKeefrey & Hofius as damages for the coke which had not been shipped to them. These suits have been on in the courts for several years, until a final decision was reached last week. Judge Buffington rendered a decision in favor of the H. C. Frick Coke Company, granting them the $12,000 for the coke furnished the plaintiffs. In his answer he interpreted the duties of the coke companies toward their customers in case of car shortages, strikes or other causes which would lead to a decrease in the amount of coke manufactured. He further stated that a coke company was not responsible for the failure of railroads to supply the cars or suspension of operations of works by reason of strikes or other causes, and he approved of the plan of the H. C. Frick Coke Company in giving each customer a *pro rata* share of the output in proportion to his contract. The decision is a very important one, it being the first judicial interpretation of the meaning of similar contracts, the unavoidable violation of which has caused endless trouble between coke consumers and manufact-

urers. During the progress of the suit a voluminous amount of evidence was introduced. Railroad officials whose lines enter the Connellsville region were called upon as witnesses in order to show that car shortages existed during periods claimed by the H. C. Frick Coke Company. The cause of the plaintiffs as well as that of the defendants was represented by the very best legal talent, and the case was bitterly contested by both sides. The decision will no doubt have much influence in doing away with the troubles which have formerly surrounded coke manufacturers, who having large contracts for the delivery of coke were unable to fill them for various causes, principally car shortages and strikes.

The labor troubles in the mining district of Tennessee, which commenced about one year ago, broke out again on the 16th inst., at which time the miners at Whitwell attacked the stockade at Inman and compelled its surrender. It was agreed that the convicts should be taken away if the miners would not burn the stockade. This was agreed to, but the miners afterward returned and destroyed a portion of the stockade with axes and did damage to the amount of several thousand dollars. The Governor ordered the sheriffs of the different counties to call a posse of deputies and go to the scene of the disturbances, but their movements were so slow as to avail little. The miners then attacked the stockade at Tracy City, destroying it and liberating the convicts. Next followed the camp at Oliver Springs, which was surrendered to the miners without a shot being fired by the guards. It was believed that the next point of attack would be at Coal Creek, and to this point the deputies and State militia were ordered. The greatest excitement reigned in Chattanooga, Knoxville and Memphis, and these cities sent about five or six hundred volunteers, many of the leading citizens being included in the number. The hardware stores turned over their stock of arms and ammunition to them, as the State was unable to supply the demand made upon it. The National Government came to the State's aid and sent them 600 stands of arms and 39,000 rounds of ammunition by express. On the night of the 19th, a fight occurred near Fort Anderson at Coal Creek, in which the miners were completely routed. It is known that three of the soldiers were killed, and six or eight miners, and a number wounded. The militia under General Carnes is now in full command of Fort Anderson and Coal Creek, and it is thought that the trouble is over. The action of the State authorities a year ago, when the trouble with the miners occurred at Briceville, in temporizing with them, calling a special session of the legisture, and failing to arrest the leaders of the rioters, had given them an idea that their actions were upheld by the citizens, and it is the opinion of many that had the Governor taken decided action at that time and prosecuted the leaders of the mob, the recent trouble would not have occurred. On the 18th inst. the Board of Prison Inspectors held a meeting at Nashville, and served notice of the abrogation of the convict lease of the Tennessee Coal, Iron and Railway Company. This company seems to be indifferent as to the matter, and one of the officers of the company in speaking of the matter said that the trouble would have very little effect on their business, as the proportion of coal and ore taken from Tennessee was very small in comparison to that taken from Alabama. It is believed that the outcome of trouble will be the death of the convict lease system in the State of Tennessee, which is a result greatly wished for by her best citizens.

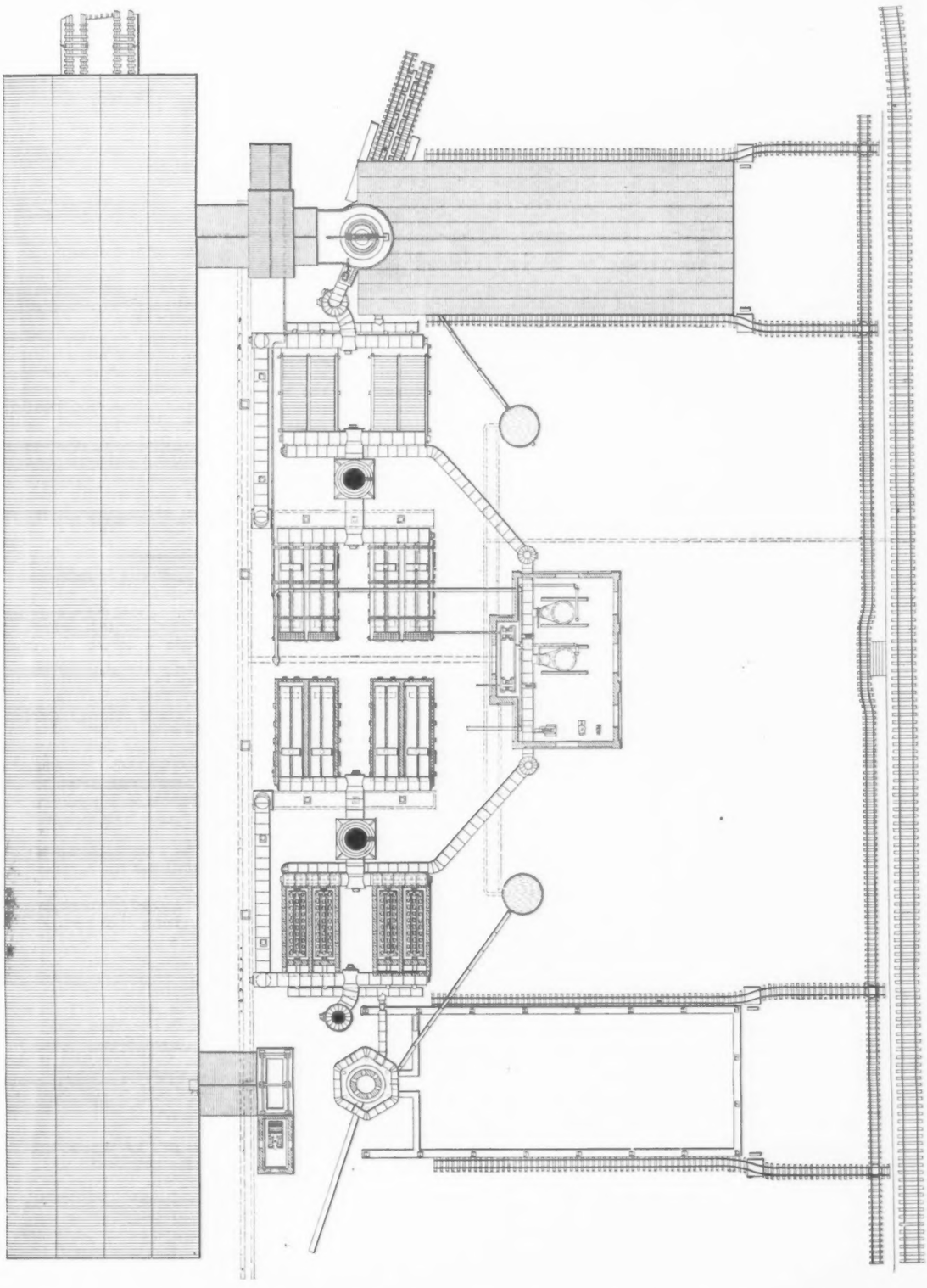
## The Grand Rivers Furnaces.

Of the two 150-ton charcoal iron furnaces of the Grand Rivers Company of Grand Rivers, Ky., John M. Hartman of Philadelphia, Pa., in a report dated March 24, 1892, says: "The Grand Rivers furnaces are the best designed, built and equipped of any charcoal furnace plant in this country." The plant consists of two furnaces of the following dimensions: Hight from hearth to charging platform, 60 feet; diameter of bosh, 13 feet 6 inches; diameter at stock line, 10 feet; diameter of hearth, 7 feet 3 inches; hight of tuyeres above hearth, 5 feet 6 inches; number of tuyeres, 6. Blast is supplied to these furnaces by vertical I. P. Morris engines having a maximum capacity each of 11,500 cubic feet of air per minute (engine measurement) under a guaranteed pressure of 15 pounds per square inch. The engines are so arranged that either one or both may be used on either furnace. The engine house is arranged to receive a third engine should it at any time seem desirable, besides the blowing engines. There is also contained in the engine house four boiler feed pumps and a large Edison electric light plant. Steam for this plant is generated in 16 two flue steel boilers of the following dimensions: Diameter of boilers, 4 feet; length, 34 feet; diameter of flues, 16 inches; total available heating surface, 5624 square feet. Allowing 30 square feet



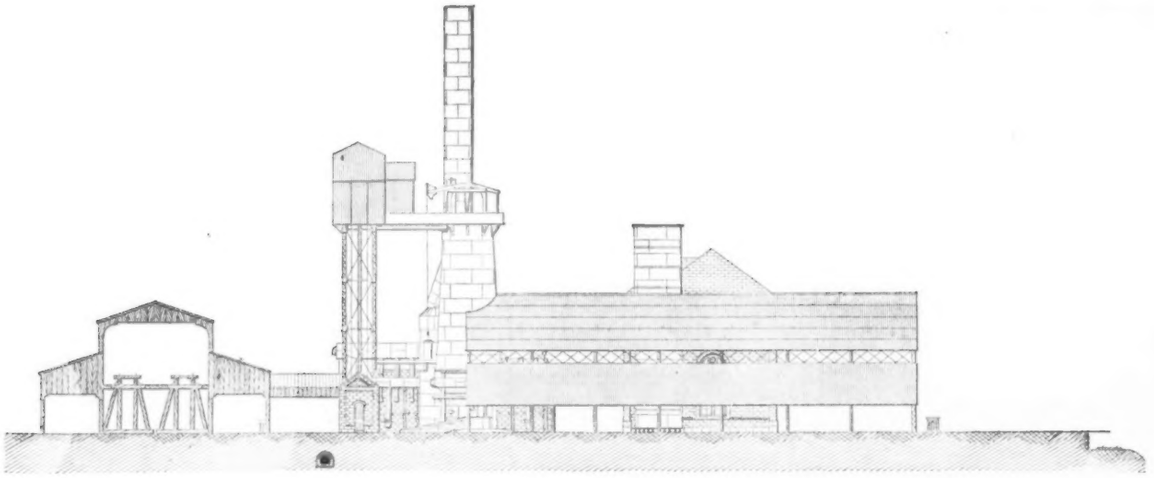
ELEVATION OF THE CHARCOAL FURNACE PLANT OF THE GRAND RIVERS COMPANY.

of heating surface for each ton of charcoal iron made in 24 hours, we have a total available boiler capacity equal to a product of 186 tons of iron every 24 hours. These boilers are so arranged that any two may be laid off for cleaning or repairs without in any way disturbing the plant or diminishing the output of iron. Hot blast is maintained by two double batteries of Durham stoves at each furnace. This stove is now in use at upward of 50 furnaces, notable among which are Warwick, Durham and Secaucus, whose records today challenge the world for economy in fuel consumption. The construction of this stove is very simple, having no combustion chamber underneath, but a small chamber at the end where the gas enters, is ignited and passes into the oven through slots in the partition wall. There are 30 pipes in each section of the ovens, each pipe having 65 square feet of heating surface. It has been found at Durham, where these stoves have been in almost constant use since 1876, that 100 pipes, or 6500 feet of heating surface, will heat 16,000 cubic feet of air per minute (engine measurement), and that with regular running 1000° F. can be maintained. Each double stove (as erected at Grand Rivers) has 3900 square feet of heating surface, and in a run of 90 days there was no difficulty in maintaining 1000° F. with each double battery while blowing 8500 feet of air per minute. It will be seen, therefore, that the double battery of stoves at each furnace, having a total of 7800 square feet of surface, is ample for the requirements, and that one section of these stoves may always be out of service and yet 1000° F. be maintained while driving at full speed. The stock-

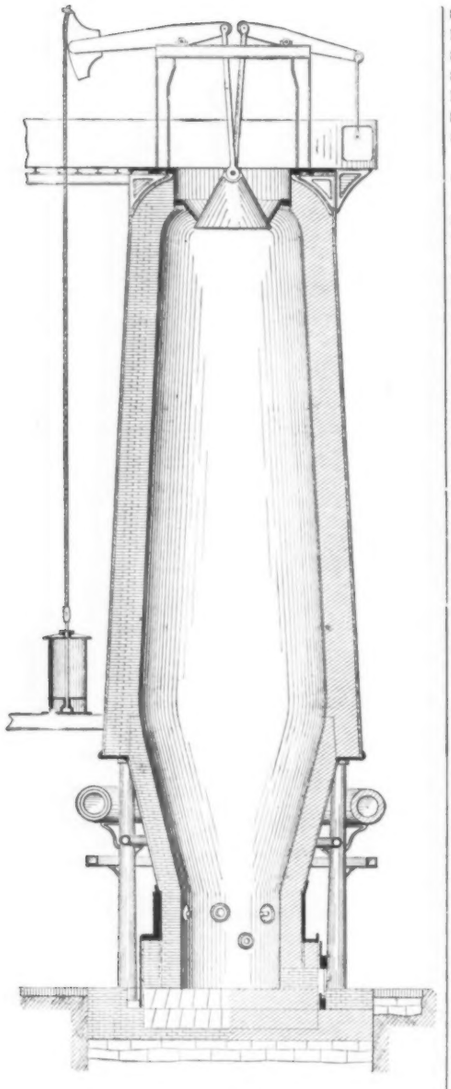


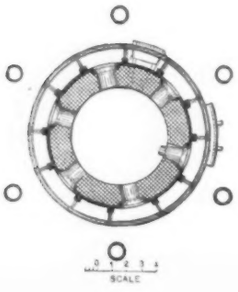
PLAN OF THE CHARCOAL FURNACE PLANT OF THE GRAND RIVERS COMPANY.

house is large and commodious, dimensions as follows: Length, 408 feet; width, 72 feet; two tracks laid on trestles 16 feet above the floor line run the entire length of the building. The casting houses are wrought iron throughout, and are large and well ventilated; they cover a ground space of 131 x 50 feet, with parts 24 feet high. In a word, the plant has been de-



SIDE ELEVATION OF GRAND RIVERS FURNACE PLANT.





signed with great care in every particular, not been built to make money spasmodically, eventually resulting in a wreck such as may be seen in the case of many furnaces scarcely a decade old, but to have a successful industrial life aside from natural advantages of location.

Joseph M. Searle, general superintendent, reports: "In this location we are very far removed from the experimental stage, for from the year 1810 until 1862 this district was the scene of great activity in the making of pig iron, beginning with the Freeman Iron Works, on Eddy Creek, erected by Michael Freeman of North Carolina in the year 1810 and ending with the abandonment by the owners, or the destruction by the Federal army in 1862, of the 26 charcoal furnaces then in active existence. Fully realizing, however, that the quality and quantity of our product would depend in a great measure upon the nature and quality of the ores at our disposal, this was all carefully considered in every minute detail before a single dollar was spent in improvements. A very important question in connection with the establishment of a furnace plant is that of transportation. For example, we have good coal, ore and limestone almost in juxtaposition, and yet we may be at the mercy of a single railroad company who will collect as freight charges so much of the earnings of our plant as to make the production of pig iron unprofitable. Such condition, however, can never exist at Grand Rivers, for just 20 miles southward from the confluence of the Tennessee with the Ohio River you will find our city of Grand Rivers, located here because of the wonderful facilities for transportation on the east by the Cumberland and on the west by the Tennessee rivers, and through these into every navigable river between the Rocky Mountains and the Alleghanies to the gulf and into every State but one between these two mountain ranges on the western side of this most favored of all locations. Upon the banks of the Tennessee River are the Grand Rivers furnaces, located here because of the peculiar fitness of everything for the production of iron."

An exhaustive test of the new method of ferruling the tubes of leaky boilers, which was made at the direction of the British Admiralty, has had a successful result. The Thunderer was selected as the vessel best suited to conduct the test. She recently returned from an experimental trip to Madeira, having steamed continuously at four-fifths full power during the passage out and at a slightly increased pressure on the homeward journey when meeting head winds. The boilers showed no sign of leaking, and out of a total of 3000 ferrules fitted to the tubes only three were found defective. The *Record* considers that this test settles the question, and estimates that at the present time there are boilers in British naval vessels, representing a value of over £150,000, that can be made efficient by this plan of ferruling, which would otherwise be condemned. The ferrules are very easily fitted, being simply driven into the end of the boiler tubes without screwing or other appliance. The ferrule has an overlapping flange, with an air space, which is claimed to preserve the end of the tube from the action of the fire close to the boiler plate.

### Car Ferry Across Lake Michigan.

A car ferry across Lake Michigan will be one of the curiosities this season of navigation. Within a month the ferry will be established between Frankfort, the Michigan terminus of the Toledo, Ann Arbor & North Michigan Railroad, and Kewaunee, Wis., where through connections will be made with the Winona & St. Paul Railroad. The cars will be loaded directly on the ferry and after crossing the lake will be run ashore, thus avoiding the heavy expense involved in unloading from cars to steamer and then from steamer into cars again.

The ferry will be a combination of the Chesapeake Bay boat and the car transfers used at Detroit and Port Huron. They will be built to withstand the most furious storms raging on Lake Michigan, particularly during the winter, as they are designed to run all the year round. They will have twin screws and an ice crusher at the bow.

Two boats for this novel ferry are now under construction by the Craig Shipbuilding Company at Toledo, Ohio. They are 250 feet long, 52 feet wide and 16 feet deep. Each will carry 24 loaded freight cars on four tracks, which run from end to end. It is said that it will cost but $2 to carry a car across Lake Michigan on the new ferry, as against $7 where bulk is twice broken. The two boats will cost $190,000 each, and will be fitted up with all the modern appliances. Particular attention will be paid to guarding the machinery against accident while in midlake.

British shipping is suffering from severe depression, with the effect of diminishing the new tonnage ordered for construction. One of the prominent authorities in London shipping trades writes: "There have been times when in certain trades business has been worse, but, taken altogether, there never was a time of such universal depression." The contemplated new tonnage is not one-half as large as it was six months ago.

# WORLD'S FAIR NOTES.

### Allotments of Space.

Chief Robinson of the Department of Machinery states that in the next week or two he will begin to solve the problem of awarding space to the exhibitors of machinery. Applications have been received for floor space sufficient to fill the great machinery building several times over if allotments were made precisely as exhibitors indicate. The applications have been carefully classified and digested, and are being transferred to scale maps of the building, in order to determine how much cutting down will be necessary. When this has been decided upon, the matter will be laid before the Director-General, who will pass upon it as speedily as possible, after which Chief Robinson will notify the exhibitors of the space granted each, and will request them to indicate to him the character of the display they will make. It is probable, therefore, that machine manufacturers will know during the coming month just what they will be able to do in the way of exhibiting their productions. This information, when communicated to Chief Robinson, will be treated confidentially, so that no manufacturer need fear that his competitors will learn through the exposition authorities what he proposes to do. Even the list of exhibitors will not be disclosed until the official catalogue makes its appearance.

### The Souvenir Half Dollar.

The managers of the fair have received a number of bids from syndicates for the entire issue of the souvenir half dollars. The highest bid is stated to have been $5,500,000. Over $1000 has been bid for the first piece coined. The managers, however, have decided not to sell the entire issue to a syndicate, but to receive orders for the pieces at $1 each. Subscriptions are pouring in for various quantities, running from applications for single pieces up to orders for 10,000. The subscriptions must be accompanied by the cash to make them valid. The offers of the syndicates would hardly have been refused if the managers were not thoroughly confident that the entire issue would be sold at $1 each. They rejected the syndicate idea, as the coins would then have been held at a much higher rate, which would have caused great dissatisfaction from the body of the people.

### Officially Changed the Date.

The Board of Control last week changed the date of the dedicatory ceremonies from October 12 to October 21. This change was made in accordance with the act of Congress, and in order to make the 400th anniversary of the discovery of America by Columbus correspond with the Julian calendar, as well as to avoid conflict with the important Columbian celebration in New York.

The board did another important thing. It voted that the ceremonies should begin October 20 and continue throughout October 23. Gen. Nelson A. Miles made the suggestion, and it was concurred in. According to this programme the civic parade will be given October 20.

October 21 the main dedicatory exercises will be held in the afternoon. At night there will be a procession of centuries and also a grand display of fireworks. October 22 there will be a military review and at night fireworks and the procession of floats. President Harrison, it is expected, will be in Chicago the days of October 21 and 22.

### Changes in Management.

On Thursday the resignation of President W. T. Baker of the local company or Chicago Directory was accepted by the Board of Directors, and H. N. Higinbotham was unanimously elected as his successor. Mr. Higinbotham has been first vice-president of the company since last April. Director Ferdinand W. Peck was elected first vice-president to fill the position vacated by Mr. Higinbotham.

The Board of Reference and Control of the National Commission and the Chicago Directory adopted a plan for the Council of Administration in accordance with the previous conference. J. W. St. Clair and George V. Massey were elected to represent the commission. President Higinbotham and Director Schwab were elected from the directory. According to the terms of the agreement this Council of Administration will have final and exclusive jurisdiction in all matters pertaining to the administration of the fair. Director-General Davis was given exclusive authority to deal with exhibitors and was empowered to make requisition on Chief of Construction Burnham for any assistance which might be needed. Mr. Burnham's title was changed to Director of Works. He will have charge of the operating forces on the grounds and make all appointments, subject to the approval of the Council of Administration. Both the Director-General and the Director of Works are subject to the authority of the council.

The four members of the council are to receive pay at the rate of $500 a month. The directors will pay the salaries of their members, and the commission will assume the expense of theirs. All the standing committees of the local directory, with the exception of the Executive Committee, the Committee on Ways and Means and those of Finance and Federal Legislation, are abolished. The management has thus been greatly simplified, and four men will from this time transact the business which has previously been under control of eight committees.

### Electric Phaeton for the Fair.

A vehicle unique in character and equipment has just been built at Indianapolis. It is an electric phaeton, built for F. E. Degenhardt of Chicago. It will carry two passengers on the main seat and a motorman on the rumble. The motorman will guide with one hand and with the other apply or shut off the electricity, which is generated in six cells located under the main seat. The current is transmitted to a ½ horse-power motor. The phaeton is designed to carry passengers through the various buildings and walks of the World's Fair. The motorman will also be a guide to explain the exhibits to the passengers. The speed proposed is 3 miles per hour. The phaeton will be submitted to a trial before some of the officers of the Fair Commission. If it meets with the favor expected, 3000 will be built of this pattern and many others on a larger scale, with more power, for street use. The one completed when loaded will weigh nearly 1000 pounds, but runs so easily that it could be drawn over a smooth floor, with three persons aboard, by a small boy. Its greatest width is 3 feet, and the extreme length 6½ feet. It is the intention of the company building these machines, if they get the necessary franchise, to charge $1 an hour for the service of one vehicle and its operator.

### Goods Are Duty Free.

Collector Clark was puzzled last week regarding a consignment of nails, iron beams and building materials sent over by a Belgian firm for a building on the World's Fair grounds. The law permits the free entry of all goods intended for exhibition, but it was a question with the Collector whether these materials, which will be hidden in the building and cannot therefore be exhibits, were entitled to free entry. The Collector came to the conclusion that the goods were duty free, provided the Director-General accepts them for use within the exposition grounds. If sold after the exposition closes, however, the duties will have to be paid.

### Progress of Work on the Buildings.

All work on the grounds is progressing rapidly and new work is begun daily. In addition to the 23 State buildings, which have been under way for some time, Washington began work on the 16th and Arkansas on the 18th. Foundations for Germany's building are well along, work having begun on the 11th. Of the State buildings Montana and Rhode Island are nearest completion and will be finished structures by September 15. Architect Mead's pediment for the main entrance to the Agricultural Building is being placed. Work was begun this week on the cold storage warehouse, the site of which is just south of the Sixty third street entrance. A large force is actively at work hauling the sand and laying ties for the terminal tracks in the southwest corner of the grounds. Installation tracks are also being laid in the buildings and the concrete foundations are being put in in the north portion of the grounds for the intramural railway. Actual construction work has begun on the Turkish village in the Midway Plaisance. Four fire engine houses have been started. Work has been begun for the moving of the Dairy Building.

It has been decided that the Manufactures' Building shall have a waterproof roof, whether any other building has such a roof or not. The material to be used is corrugated iron. The roofs of some of the buildings have leaked like sieves with every rain. The first strip of corrugated iron was placed on the sheathing over the central hall of the Manufacturers' Building on Friday. The last great truss for the roof was bolted up Wednesday evening. This was the completion of the greatest work of its kind ever attempted. The gore trusses will all be in place, the floor cleaned up and the big traveler down by September. Above 13,000,000 pounds, or 6500 tons of steel, have been placed in this construction, at a cost of $537,000. It is expected that the building will be inclosed and plastered by October 1.

Plans for the World's Fair passenger station at Jackson Park were completed last week. The designs call for a main station 150 x 300 feet. A train shed 100 x 672 feet is annexed. Provision is made for loading and unloading 36 trains at one time on reserved tracks. There will be room for 26 additional trains to be run into the station as soon as the first 36 are loaded.

### Miscellaneous.

The British Commission, through Sir Henry Wood, its secretary, has signified its intention to use its own power, boilers, fittings, &c., in the machinery section of the British exhibit. An immense engine will be put in, which will supply all the power. This action is in pursuance of the invitation from the exposition authorities to commissions of foreign nations to supply their own power for their respective exhibits whenever practicable. The English commission is the first to respond with an announcement that it will do so.

Walter S. Lenox, secretary of the New Jersey Exposition Commission, with several leading manufacturers of New Jersey and the architect of their State Building, Mr. Gifford, were in Chicago last week and called on the Director-General. Mr. Gifford, the architect, will superintend the construction of the New Jersey State Building. It is to cost, approximately, $35,000.

The Beloit Iron Works of Beloit, Wis., have been awarded by the American Paper Making Exhibit Company the contract to build the finest machine on earth, to be

run at the World's Fair. The machine will be 106 inches wide, and will be as perfect in detail as possible. It will be trimmed in nickel and aluminum. It will cost $24,000. It is expected that a fair programme will be printed on paper made by the machine.

Exposition officials do not intend that the artistic character of the exposition buildings and grounds shall be marred by advertisers. The Executive Committee has rejected the proposition of an advertising firm which was willing to pay $500,000 to secure the privilege of posting advertisements on the electric lamp posts throughout the grounds.

Chief William A. Smith of the Transportation Department is advised by cable from Herr Wermuth, Imperial Commissioner for Germany, that the Siemens & Halske Company will exhibit their electric conduit railway system.

The old Pioneer, the first locomotive which ever ran out of Chicago, will be placed on exhibition by the Chicago and Northwestern Railway. It will probably be attended by one of the old engineers who ran it, several of whom are still living.

A Chilian telegram states that Minister of Finance MacIver has ordered the Intendente of Tarapaca to co-operate with the nitrate men with a view of having that industry represented at the exposition.

## The Strong Compound Engine.

In this engine, which is the invention of George S. Strong of 45 Broadway, New York, the two cylinders, the valve chamber and the ports are all formed in a single casting, which, as shown in the drawings, is adapted for use in connection with a locomotive. Formed in the casting is the passage I, Fig 3, for admission of live steam from the boiler, and the passages F, through which the exhaust steam from the low-pressure cylinder is carried into the smoke box. The valve stem K is formed as a sleeve embracing the valve stem J, and having inside of the valve box slots, K', Fig. 2, to permit the passage of a bolt or key, L', which passes through the stem J, and is used to secure to this stem a spool admission valve, L L', which works in the valve box C. On each side of the admission valve exhaust valves, M M', are secured to the sleeve, and where the valve is used in connection with a compound engine additional valves, N N', are also secured to the stem K, to regulate the exhaust of the low-pressure cylinder.

Around the box C and opening into it through its sleeve, D, Fig. 1, are a series of ports, indicated by the numerals 1 to 9 inclusive. The port 1 is connected with the steam supply passage I and the ports 2 and 3, situated on each side of it, lead, respectively, to the two ends of the high-pressure cylinder. The ports 2 and 3 enter the high-pressure cylinder through suitable passages, with which the ports 4 and 5 are respectively connected. The ports 6 and 7 are the exhaust ports of the high-pressure cylinder and in the construction shown they are also the admission ports to the low-pressure cylinder, and the ports 8 and 9 serve as the exhaust ot the low-pressure cylinder and connect with the passages F. By placing the spool valve on an independently actuating rod, it is possible to carry the admission of steam to the high pressure cylinder, while the exhaust valves of this cylinder and the admission and exhaust to and from the low-pressure cylinder remain unvaried or are only raised at will; the stem K, for instance, having its motion regulated by a governor, while the motion of the stem J is only under the positive control of the engineer. In Fig. 2 of the drawings the valves are shown in an intermediate position, useful as indicating the lead of the various valves. In Fig. 3 the position of the valves is such that the steam from the boiler will pass from port 1 to port 3; thence it passes through the passage to the right-hand end of the high-pressure cylinder, the port 5 also leading into this passage, being in the position of the valve shown in Fig. 3, cut off by valves L' and M' from all communication with other ports or passages.

Looking to the left of Fig. 3 it will be seen that the port 4, which communicates with the passage leading to the left-hand end of the high-pressure cylinder, opens into the space between the valves N and M, and as this space also communicates with the port 6 the exhaust from the high-pressure cylinder then enters the left hand end of the low-pressure cylinder through passage 12, which is in communication with port 6. The exhaust from the low-pressure cylinder escapes through passage 13 at its right hand end to port 7, and thence between valves M' and N' to the exhaust port 9 and the exhaust passage F.

It is unnecessary to describe in detail the passage of the steam through the various ports and cylinders, as in view of the description already given it is a simple

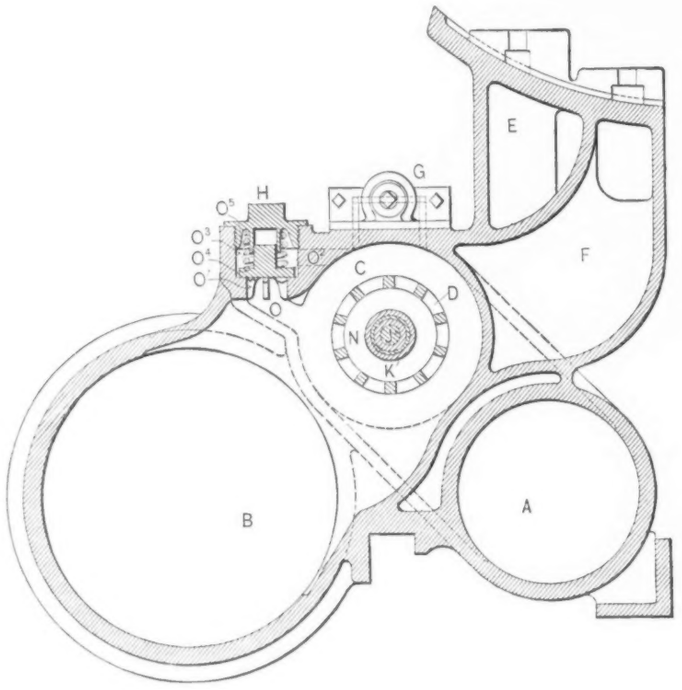



*Fig. 1.—Cross Section.*

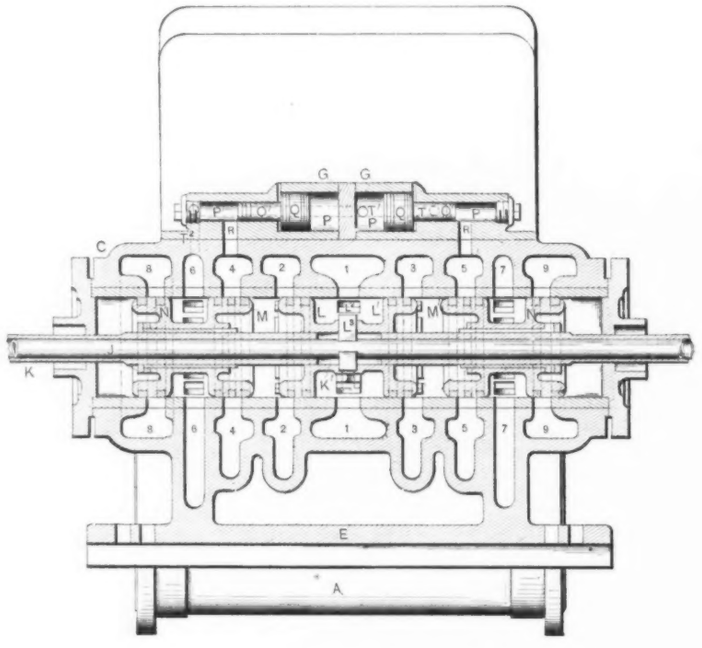



*Fig. 2.—Section through Valve and High-Pressure Cylinder.*

THE STRONG COMPOUND ENGINE.

and easy matter to follow the passage of the steam in all positions of the valves, and the simplicity and compactness of the arrangement for controlling the steam in its passage through the engine is, of course, apparent. It will be noted that by having the two ports 3 and 5 and 2 and 4 connecting with the passages leading to the high-pressure cylinder the clearances are cut down and all the steam passages made less tortuous, the passages, particularly for the exhaust from the high-pressure cylinder to the low-pressure cylinder being very short and direct, whereby the efficiency of the engine is greatly enhanced.

The device shown at G is a simple and efficient arrangement for admitting steam at a proper pressure to the low-pressure cylinder of the compound engine in starting and before the exhaust from the high-pressure engine is available.

The starting valve is shown double in Figs. 2 and 4, or, rather, an independent starting-valve is provided for each end of the low-pressure cylinder, the one valve being indicated at G and the other at G'. Each valve consists of a differential cylinder, P P', the diameter of the part P being four times that of the part P'. From the outer end of the cylinder P—that is, from the part furthest from its extension P'—a port, S, leads into a passage, T', which communicates through a passage, $T^2$, with the admission port at one end of the low-pressure cylinder, as shown. The passage $T' T^2$ from the starting valve G' leads to the port 6, and the corresponding passage from the starting valve G leads, of course, to the port 7. The passage T' also communicates through a port, T, with the inner end of the cylinder P'—that is, its end nearest to the cylinder P—and another port, R, leads from the back of cylinder P' to the admission port of the high-pressure cylinder on the opposite side from that end of the low-pressure cylinder which is in communication with the passage T'. As shown, this communication for the valve G is to the port 5, and for the valve G' to the port 4.

Assuming now that the valve is in the position shown in Fig. 3, the live steam will pass from port 1 to port 3, and thence through the passage to the right-hand end of cylinder A; but port 5 is also filled with high pressure steam, which will pass through the passage R to the outer end of the cylinder P'. Now, in this cylinder is a piston valve, Q', to the inner end of which is secured a piston, Q, working in the cylinder P, the two together constituting a differential piston with areas, respectively, as one to four. The high-pressure steam acting on the end of piston Q', will push it and the piston Q before it until the port T is open, and the steam will then pass through passage $T' T^2$ and port 6 into the passage 12, which leads to the left-hand side of the low-pressure cylinder. The steam will also lead from the passage T' through port S to the outer end of the cylinder P, and obviously as soon as the pressure in this cylinder exceeds one-quarter of the pressure in cylinder P' the pressure acting on the piston Q will move it and the piston Q' back to their original position, closing the port T, and cutting off further admission to the low-pressure cylinder. In this way both cylinders are started together and with a proper amount of pressure with respect to each other. The companion valve, of course, acts in the same way with respect to the opposite ends of the respective high and low-pressure cylinders.

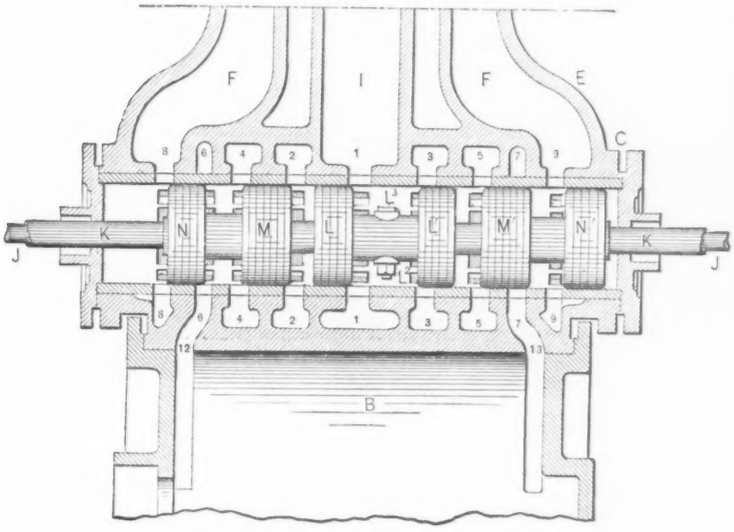



*Fig. 3.—Section through Valve and Low-Pressure Cylinder.*

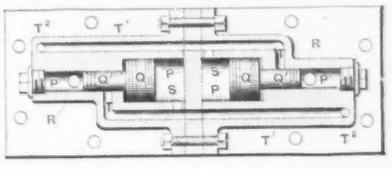



*Fig. 4.—Plan View of Starting Valve.*

## THE STRONG COMPOUND ENGINE.

In order to avoid shock and injury to the engine by excessive pressure or by the presence of water in the cylinders relief valves are provided, the construction of which is indicated at H in Fig. 1, one valve being provided for each end of each cylinder. The valve consists of a chamber, $O^3$, having a cord communication or passage, O, leading into it from the admission port at the end of a cylinder, a valve seat, O', being formed at the point where the passage O enters the valve box or chamber $O^3$. Another passage, $O^2$, leads from the steam supply passage into chamber $O^3$, and a valve, $O^4$, is normally held seated on O' by the pressure of steam entering the chamber through passage $O^2$. A spring, $O^5$, may be advantageously used as additional means for holding the valve to its seat. The valve $O^4$ being held to its seat by a pressure as great or greater than that in the cylinder will remain seated under ordinary conditions, but whenever the piston meets with an excess of resistance at the end of its stroke the pressure communicated through port O will lift the valve from its seat and permit water, if it be present, to pass from the end of the cylinder into chamber $O^3$ and thence through passage $O^2$ to the steam supply. The advantage gained in this form of relief valve is that the steam escaping from the cylinder through the valve is not lost, as it would be if the outlet passage communicated with the atmosphere or with the exhaust, but is returned into the general steam supply, while at the same time the small amount of water admitted by the valve into the steam supply is flashed or taken up by the steam, and when next admitted to the cylinder passes off with the exhaust.

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The Niagara Falls tunnel will probably be finished October 1, and the wheel pit excavation shortly after. Power will begin to be furnished toward the end of March at latest, possibly in January, and at two points: 1. The central station, where about 10,000 horse power will be turned out from three 5000 horse-power wheels, which will probably be converted into electricity and distributed. By enlarging the wheel pit ten 5000 horse-power wheels can be put in at this point. 2. About 3000 horse-power for the Niagara Falls Paper Company, which is furnished at the extremely low price of $8 per year per 24 hour horse-power. The company's public announcements of rates for power are $10 per horse-power for 5000 horse-power or over; $10.50 for 4500 horse-power; $11 for 4000 horse-power, and so on down to $21 for 300 horse-power, all for 24 hour power if wanted, the cost of ordinary steam-power for a 10 hour day ranging from $25 to $40. There will be seen to be a large margin, therefore, even from the higher rates for the water power. The ultimate capacity of the tunnel is some 100,000 horse-power of 24-hour power. The tunnel on the Canadian side will also be pushed soon by the same company, stimulated by the fact that it has to pay a royalty of $25,000 per year to the Canadian government for their franchise. A tunnel only one-tenth as long is needed to develop 100,000 horse-power on the Canadian side, however. The power from the Canadian side is likely to be transmitted to Buffalo. While details are very naturally withheld, it is credibly asserted that several large consumers of power are only awaiting the completion of these tunnels to remove their works to various points on the 18 mile strip of territory between Buffalo and the Falls, the value of all of which has risen enormously.

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A law case interesting to merchants was decided last week by Judge Pennypacker, in Philadelphia. A New York firm shipped merchandise ordered by parties in Philadelphia, but neglected to invoice the goods as requested. The vessel on which they were placed foundered and a heavy loss was the consequence. Judge Pennypacker cited cases to prove that it is a rule of law that the non-performance of a voluntary contract cannot be made the ground of recovery, and the court decided that the consignee was liable for the contract price. The defense was that the shippers having disregarded the request, there was no delivery under the contract, but it availed nothing.

# HIGH-PRESSURE HYDRAULIC PRESSES IN IRON WORKS.*

BY R. M. DAELEN, DUESSELDORF, GERMANY.

Mechanical science is severely tested by the demands of the iron manufacturers for the varied apparatus needed to transport and to treat raw materials and products. Water has long been a favorite means of transmitting pressure for such purposes, because of its own incompressibility. Further advances in its use are the more to be expected, since mechanical improvements have steadily tended to overcome the difficulties formerly encountered in the employment of great hydraulic pressures. So long as the pressure is not higher than that which requires for plungers, &c., only ordinary stuffing boxes, with hemp or other similar packing, the necessary arrangements for the production and transmission of the water pressure without leakage are very simple. But when this limit (which is, for most purposes, 50 km. to the square centimeter) is exceeded, new conditions of construction arise, which are met in various ways, and which justify a primary division of hydraulic presses into low pressure and high pressure respectively. The former are used in lifting and moving weights, and employ pressures as high (in extreme cases) as 100 km. per square centimeter; but at this point the friction between piston and hemp packing is so great that the use of cup leathers is already preferable. Beyond 100 km. it becomes a necessity. The range of practicable tight packing which follows is considerable, extending to about 1000 km.; but "high pressure" in practice is from 100 to 600 km., and it is to this that the present paper applies.

### General Classes and Types.

Hydraulic transmission at high pressure usually claims consideration in case the solid mechanism, such as levers, cams, screws and gear wheels, would have to be too large, would involve too much friction, or could not be suitably adapted to the speed requirements of the working tools. Since steam is mostly the primary carrier of the energy employed, the pressure pumps operated by steam are first to be considered; and we naturally think at once of the steam engine with fly wheel, since this is best adapted to utilize the capacity of expansion.

The pressure pump, operated by such an engine through the prolongation of the piston rod, and constituting a so-called "central station," is, in fact, the favorite low-pressure hydraulic system. But for high pressures this system involves, in accumulation, distribution to points of use and control at those points of the high-pressure column, serious difficulties, which are especially felt in the almost ceaselessly continuous operations of iron works. The weighted plungers, which formerly served in most cases as accumulators, cause violent shocks in the pipe line when changes take place in the movement of the water, so that in many places, in order to avoid bursting from this cause, the pipes are made exclusively of forged and bored steel. The seats and cones of the metallic valves are cut by the water (at high speed), and in such cases only the most careful maintenance can prevent great losses of power. In consequence of these difficulties, various other arrangements for high-pressure work have come into existence, so that the following systems may be described as essentially distinct:

1. Steam pump, with fly wheel and accumulator.

* Read at the Baltimore meeting of the American Institute of Mining Engineers.

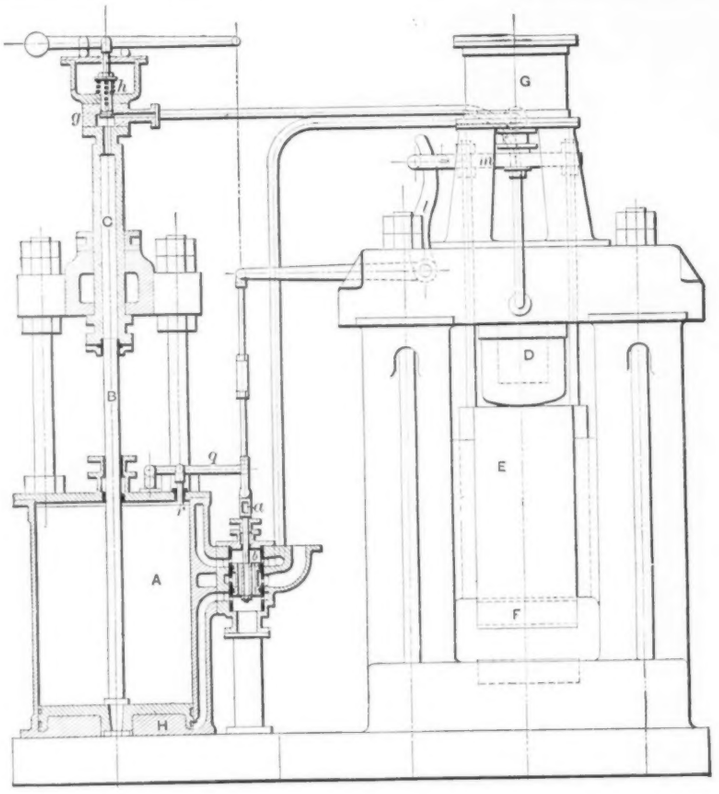



*Fig. 1.—Single-Acting Steam Intensifier.*

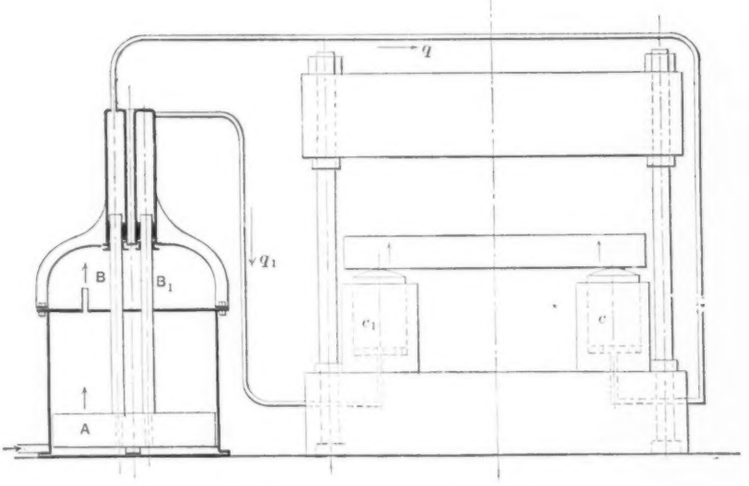



*Fig. 2.—Intensifier Operating Two Plungers.*

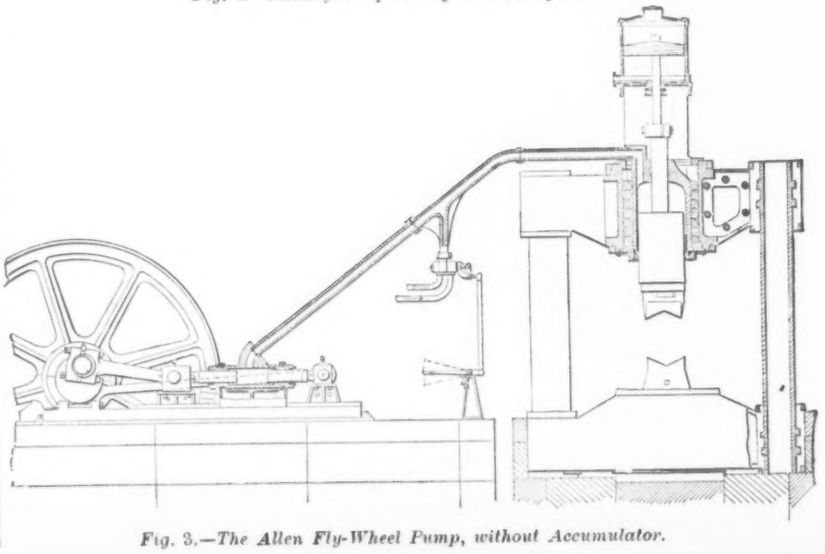


*Fig. 3.—The Allen Fly-Wheel Pump, without Accumulator.*

2. Steam pump, without fly wheel and with accumulator.

3. Steam pump, without fly wheel and without accumulator.

In these three systems the valve motion of the working press is operated in the high-pressure column. This is avoided in the following:

4. Single-acting steam intensifier, without accumulator.

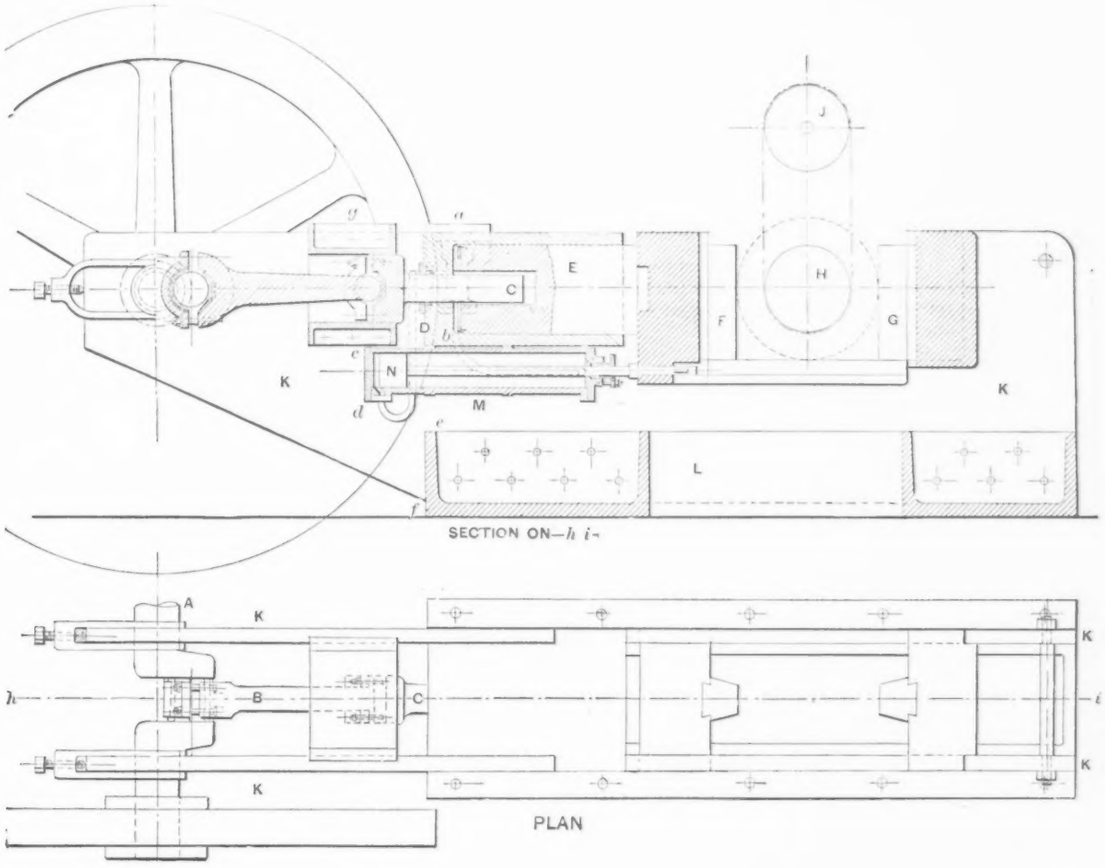
5. Steam pump with fly wheel, without accumulator and with pipe circuit.

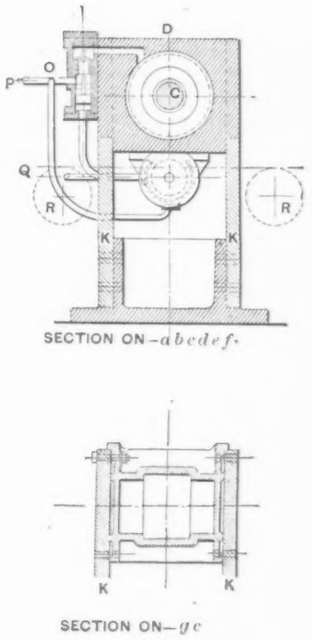
6. Steam pump with fly wheel, without accumulator and without pipe circuit.

1. *Steam Pump with Fly Wheel and Accumulator.*—The steam pump with fly wheel cannot be used without an accumulator, because it cannot accommodate itself to the varying demand of the hydraulic plunger for water. The accumulator is usually made as large as practicable, so that the intervals of rest of the press can be utilized to keep up the pressure, and the dimensions of the pump may therefore be comparatively small. Moreover, one pump may have several accumulators, of which the one nearest the pump automatically shuts off when all are filled, and opens when pressing begins. To reduce the number of valves the differential pump piston is employed. It has been found that the cylinder also should be of forged steel when the pressure amounts to 300 to 600 kg. per square centimeter. The piston speed is usually kept between 1 and 1.5 m. per second. It could be greater for the steam, but this is avoided, because it would require the introduction of gear wheels, and the double transition from rectilinear to rotary motion and back again.

2. *Steam Pump without Fly Wheel and with Accumulator.*—By removing the fly wheel from No. 1 we obtain the second system, which may be operated with a smaller accumulator, because the machine is better adapted to adjust itself to the demand for water when the inlet valves of the presses are opened. Size and speed of the pump are made correspondingly greater. Installation is cheaper, but consumption of steam (by reason of the smaller use of expansion) larger than for No. 1.

3. *Steam Pump without Fly Wheel and without Accumulator.*—A steam pump suited for use without fly wheel or accumulator (in which manner, by the way, No. 2 also can be employed) is one in which uniform water delivery is secured by a triple division of its pumping part. The steam piston rod operates by means of a crank and a three-throw crank shaft, three water plungers. The dimensions must be adequate to the maximum demand for water; the steam consumption is correspondingly increased; and, since the pressure in the conducting pipes must be kept constantly high, the loss by any leakage would be the same in this case as in Nos. 1 and 2, but the installation is simpler and cheaper.




*Figs. 4 to 7.—The Daelen Horizontal Hydraulic Forging Press.*

4. *Single Acting Steam Intensifier, without Accumulator.*—The single acting steam intensifier, Fig. 1, has a vertical steam cylinder, A, the piston of which is forced upward by steam entering below, while the prolonged piston rod B presses upon the water in the cylinder C, in inverse proportion to the surfaces of the two pistons. The water is conveyed through a pipe to the working cylinder D of the press, where it effects the necessary stroke of the hydraulic plunger through a distance reduced in proportion to the increased area. The admission and cut-off of steam are regulated by hand, or (if desired) automatically. In the water column is an automatic valve, regulating the velocity of the plungers; and there is a similar valve, *h*, admitting water to replace that which has been used. Both of these are closed before the high pressure is put on. The water already used returns from the working cylinder D to the driving cylinder C. In the use of this system, not only the accumulator, but also the long-pipe circuit, is dispensed with, since every press generally has its own intensifier, the distribution of steam available for such purposes being already provided in most works. This transformation of steam pressure into water pressure can be carried to an almost unlimited extent; but, in order to keep the friction on the cup leathers as low as practicable, a water pressure of 400 kg. per square centimeter is not exceeded, unless of necessity. It is advantageous to make the

stroke of the intensifier as long as possible; but this is often limited by the available space. Since stroke and pressure of the hydraulic plunger are usually given, the transformation is arranged with reference to the available steam pressure. The short connection between the driving and the working cylinder, and the absence of valves to be operated between them, permit a high plunger speed, the limit of which, perhaps, has not been reached, even at 3 m. per second. The greater this speed, the earlier can steam be cut off during the stroke and the more completely can expansion be utilized—to much greater degree, in fact, than with a steam pump without accumulator, having a precisely fixed stroke and load. If the driving piston is to be stopped at a definite point, a moderate speed is chosen; and, in general, the intensifier should be (and within wide limits can be) adjusted to any requirement of the press. It can also be arranged to operate with one double-working cylinder, or with two connected cylinders, so as to increase its performance for a given time; but the arrangement of water valves is, in that case, more complicated.

Fig. 2 shows an arrangement of the intensifier by which a single steam piston, A, operating two or more parallel driving plungers B, $B_1$, having the connections $g$, $g_1$, with the corresponding working cylinders C, $C_1$, effects a uniform parallel movement of the working plungers.

The working plunger may be controlled, independently of the intensifier, by a special steam piston, accompanied with the admission or expulsion of water, or by the discharge of low-pressure water into the press cylinder. Protection against breakage of the press is secured in this system to the greatest practicable extent, since the working pressure is constantly determined by the steam pressure.

5. *Steam Pump with Fly Wheel, without Accumulator and with Pipe Circuit.*—The steam pump, Fig. 3, with fly wheel and without accumulator, as used by W. D. Allen of Sheffield for hydraulic forging,* operates similarly to the intensifier, in that the pump cylinder and press cylinder are connected by short pipes without valves, and hence the working plunger follows on its back stroke the movement of the driving piston. The fly wheel prevents any control of this motion by hand, and only the press plunger can be controlled by the admission or discharge of low-pressure water into the press cylinder. This is an attempt to combine the advantages of the intensifier with those of the fly wheel. Apart from the higher cost of the plant, the necessary space is not always available, and, moreover, some of the saving in steam is lost again through the unused portion of the stroke of the fly-wheel engine. Piston speed and number of strokes are limited by the rate of flow in the pipes, and since, therefore, they cannot be made very great, the dimensions of the machine must be enlarged, which constitutes another condition limiting the application of this system.

6. *Steam Pump with Fly Wheel, without Accumulator and without Pipe Circuit.*—This is not the case to so great a degree with the horizontal forging press patented by the writer, and illustrated in Figs. 4 to 7 inclusive. Here the driving piston moves in the press cylinder, connections are dispensed with, and the press plunger, even when strokes are frequent, must keep the pace. Each advance of this plunger can thus be made correspondingly small—a clear advantage in connection with the use of low-pressure water, to utilize the full stroke. In this system the driving engine may be far from the press, but the position of the press cylinder must be such as to permit a direct connection with the driving piston and with the crank shaft necessary to its operation. On the other hand, these features remove the evils due to shocks in the conducting pipes. Overpassing the maximum of safe water pressure is prevented by a safety valve.

In designing this press, I acted upon the opinion that the form adopted offers increased accessibility of the whole machine for handling blooms, changing hammers, dies, &c., or for inspection and repairs, while it is also the cheapest in first cost.

A is a double crank-shaft with fly wheel, driven by a steam engine; B, a connecting rod, transmitting motion to the small plunger C, which, entering the large press cylinder D, moves forward the press plunger E. The latter carries the hammer F, opposite to which is fixed the anvil G. The mass to be forged, H, is suspended between them by chains from the crane block I. The frame plates K, of rolled steel, are fastened to the base plates L, and carry the cylinder D and the anvil G. The small plunger N, moving in the cylinder $h$, is operated with low pressure water by means of a hand-lever, and drives the press plunger E, the back-action valve O being lifted when E is to retire, and allowed to fall freely when E is to be driven forward. P and Q are the inlet and outlet for the low-pressure water. The large press cylinder D is filled with water from an elevated tank. R R are rollers, mounted on lifting tables to facilitate the handling of the forging. The dies are changed with the aid of the forge cranes.

*(To be continued.)*

* More fully illustrated and explained in *Stahl und Eisen*, 1891, No. 11, p. 895.

# Tin-Plate Production.

*Hon. Nelson W. Aldrich, U. S. Senate, Washington, D. C.:*

SIR.—As per your verbal request I have the honor to inclose herewith a detailed statement of the production of tin and terne plates for the quarter ending June 30, 1892, which shows a total of 8,255,691 pounds. The production of the year by quarters is as follows:

| Quarter ending— | Pounds. |
|---|---|
| September 30, 1891 | 826,922 |
| December 31, 1891 | 1,409,821 |
| March 31, 1892 | 3,004,087 |
| June 30, 1892 | 8,255,691 |
| Total production for the year | 13,496,521 |

Of the more than 8,000,000 pounds produced during the last quarter of the year over 5,000,000 pounds were made from American black plates.

It should be further stated that the production of American sheet iron or steel made into articles and wares tinned or terne coated during the fiscal year ended June 30, 1892, as shown by sworn statements of manufacturers, was in excess of 2,000,000 pounds These returns are as yet incomplete.

During the past quarter two firms suspended operations, and seven, whose names appear for the first time in the list of producers, began the manufacture of tin and terne plates. Besides these last above referred to some eight or ten firms additional expect to begin manufacture during the present quarter.

In my special report of April 26 last I estimated the production for the fiscal year ending June 30, 1892, at 10,000,000 pounds, but it has been seen that the actual production was nearly 3,500,000 pounds in excess of my estimate.

From my knowledge of the facts I am justified in stating that if returns are made by manufacturers in due form of American sheet iron or steel made into articles and wares tinned or terne coated the total production of tin and terne plates for the year under the law inclusive of such articles will be in excess of 16,000,000 pounds.

From returns to the Bureau of Statistics it appears that the importations of tin and terne plates and taggers' tin for the year amounted in round numbers to 420,000,000 pounds.

The returns of such plates manufactured into articles exported with benefit of drawback are not yet received for the entire year, and hence the net importations for the year are necessarily in doubt, but it is now clear that they will not exceed 300,000,000 pounds.

Accepting these figures for the present as correct it would still appear that the one-third production required of manufacturers under the law will not be in excess of 100,000,000 pounds.

I see no reason for changing the belief expressed in my former report, that this last-named amount will be produced during the present fiscal year, and that by the close of the year the production will be at an annual rate of 200,000,000 pounds.

It should be stated, however, that from personal interviews and correspondence with manufacturers it is shown that the recent agitation of the question in Congress has tended to retard the development of the industry. Respectfully yours,

IRA AYER, Special Agent.

TREASURY DEPARTMENT,
WASHINGTON, D. C., July 21, 1892.

The production of tin and terne plates for the quarter ending June 30, 1892, was as follows:

| Producers. | Where located. | Pounds. |
|---|---|---|
| A. A. Thomson & Co. | New York, N. Y. | 24,805 |
| American Tin and Terne Plate Co. | Philadelphia, Pa. | 264,000 |
| American Tin-Plate Co. | Elwood, Ind | 56,597 |
| Anderson Tin-Plate Co. | Anderson, Ind. | 161,416 |
| Apollo Iron & Steel Co | Apollo, Pa. | 1,020,786 |
| Cincinnati Corrugating Co. | Piqua, Ohio | 90,372 |
| Cleveland Tin-Plate Co. | Cleveland, Ohio. | 190,791 |
| Coates & Co. | Baltimore, Md. | 155,000 |
| Columbia Tin-Plate Co. | Piqua, Ohio. | 207,700 |
| Griffiths & Cadwallader. | Pittsburgh, Pa. | 43,000 |
| John Hamilton | Pittsburgh, Pa. | 230,367 |
| Kahn Brothers | New York, N. Y. | 138,240 |
| Keystone Tin-Plate Company. | Philadelphia, Pa. | 120,000 |
| Marshall Brotners & Co. | Philadelphia, Pa. | 335,170 |
| Matthai, Ingram & Co. | Baltimore, Md | 179,125 |
| Merchant & Co. | Philadelphia, Pa. | 587,977 |
| McKinley Tin-Plate Co. | Williamsburg, Pa. | 48,000 |
| Norton Brothers. | Chicago, Ill. | 140,104 |
| P. H. Laufman & Co. | Apollo, Pa. | 260,564 |
| Pittsburgh Electro-Plating Co. | Apollo, Pa | 120,540 |
| Pittsburgh Tin-Plate Works. | No. Kensington, Pa. | 237,500 |
| Record Manufacturing Co. | Conneaut, Ohio | 358,100 |
| James B. Scott & Co | Pittsburgh, Pa. | 52,990 |
| St. Louis Stamping Co. | St. Louis, Mo. | 1,965,470 |
| U. S. Iron & Tin-Plate Mfg. Co. | Demmler, Pa. | 531,313 |
| Wallace, Banfield & Co. | Irondale, Ohio. | 735,764 |
| Total production for quarter | | 8,255,691 |

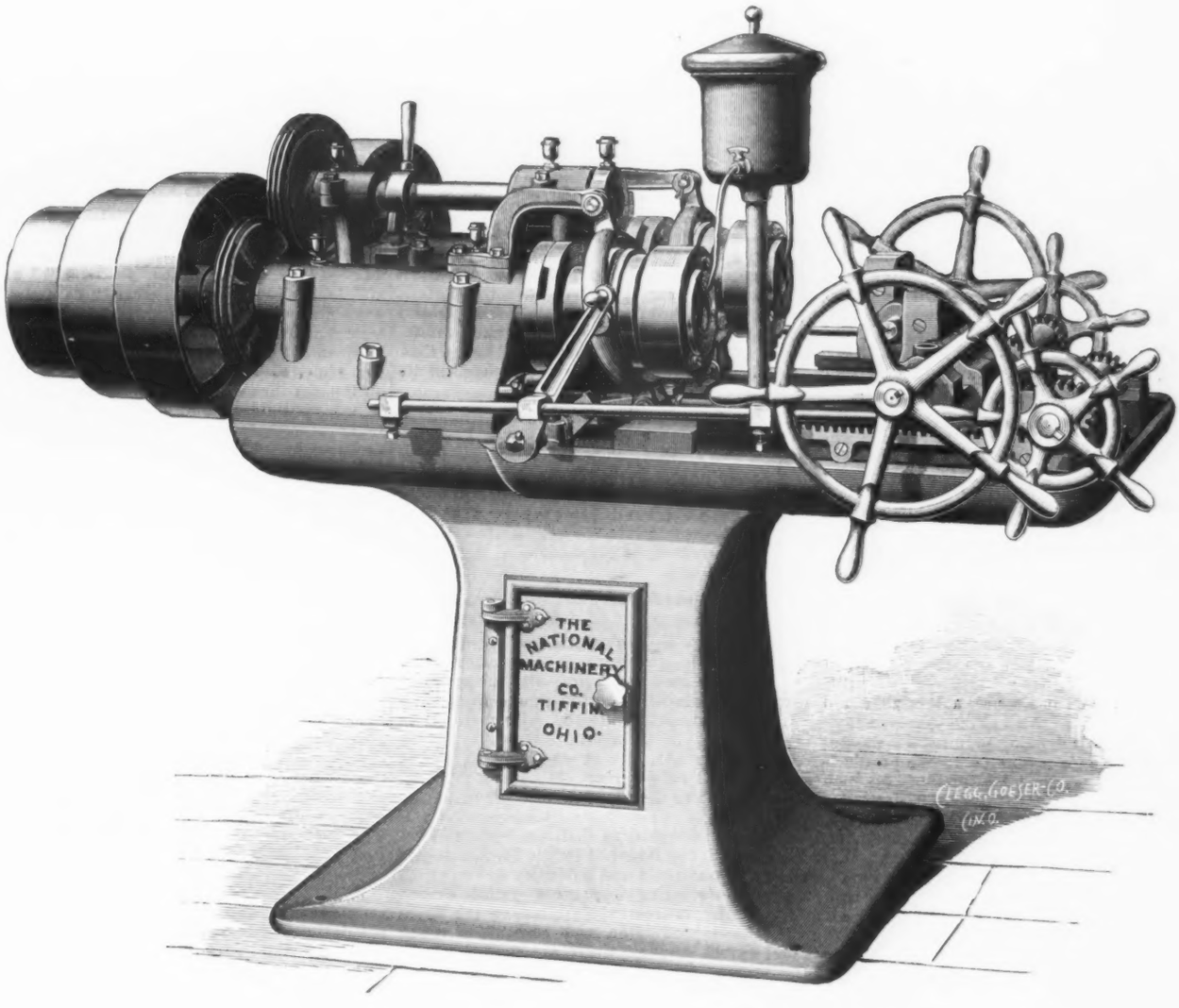
In the month of July 1,926,210 net tons of freight passed through the ship canal at Sault Ste. Marie. This breaks all records and nearly doubles the greatest merchandise movement in any equal period until within the last two years. At the rate big cargoes went through the canal last month the traffic of the seven months' season of navigation would be not less than 13,500,000 tons, in round figures, or at least 4,000,000 more than the tonnage which will use the Suez Canal this year.

The Engineers' Club of St. Louis find that there has not yet been discovered any perfect application and combination of the many inventions designed to prevent smoke in boiler furnaces.

## National Double, Independent Head, Bolt Cutter.

The illustration shown herewith represents a double-head bolt cutter, with heads driven independently of each other by separate cones, the object of which is to be able to stop one at any time while operating the other. The pump is arranged to drive from either spindle by means of friction wheels, which are thrown into contact on either side in case one of the spindles is not running.

The manufacturers of this tool are the National Machinery Company, Tiffin, Ohio.




THE NATIONAL DOUBLE, INDEPENDENT HEAD, BOLT CUTTER.

The machine is their regular doub'e National bolt cutter with gibbed vises, pump, &c., and with a capacity to cut two 1-inch bolts at a time. It is similar in style to the more compact 1½ inch double bolt cutter and was made at the instance of a large axle company. The tool is also provided with the National case die, and with hand and automatic opening.

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A new material for paving is now being introduced in London. It is composed of granulated cork and bitumen pressed into blocks, which are laid like bricks or wood paving. The special advantage of the material lies in its elasticity. When used for pavement it gives a soft tread, which is exceedingly pleasant, recalling the feeling of a carpet.

## Smoke Prevention.

A special committee of the Engineers' Club of St. Louis, consisting of E. D. Meier, chairman, W. B. Potter, Robert E. Mullath and C. E. Jones, has submitted its report on the prevention of smoke, which is printed in full in the *Journal of the Association of Engineering Societies.* We reproduce from it the following:

**Conclusions and Recommendations.**

While, as will have appeared from the foregoing, this committee is unable to say that the practical problem of smoke prevention, under St. Louis conditions, is fully solved, we can say that substantial progress in that direction has been made.

A number of meritorious devices are in the market. We cannot recognize any of them as of unlimited or unconditioned effectiveness. What their practical limitations are, we are compelled to think that neither those who have invented, sold or used them know.

The smoke nuisance affects the whole community, and all are interested in getting rid of it. All will admit that there is a great but uncalculated money loss, in destruction of goods and furnishings, in defacement of buildings, in labor and material expended in the vain effort to keep clean and in increased necessity for artificial light; an æsthetic loss through discouragement of the ornamentation of buildings, homes and grounds; a sanitary loss in impaired health and prevalence of lung and throat troubles; a population loss, in those who cannot or will not live in a begrimed city, and last, not least, a moral loss, in the effect on those who perforce endure dirt and unwholesomeness. Great as the evil has been and is, its increase, if unchecked, will be in a more rapid ratio than that of population.

The time has come when a decided step should be taken. In that step it is appropriate that the city, through its government, should take the lead, for the city authorities are themselves among the offenders. We would not advise any arbitrary action, but some pressure should be brought to bear upon those who produce the great part of our smoke cloud; for, while some are alert and willing to spend money to abate their share of the evil, the majority may safely be supposed to be inert and as unready to make an effort to abate as they have proved unwilling or careless about responding to inquiries for facts. We do not think that the cloud can be entirely removed in the immediate future, but we are sure that its density can be very materially reduced, not without cost, but without hardship to any. Yet all should be willing to exercise patience and even make some concessions.

As an indispensable preliminary to repression, we think that authoritative

and impartial determination should be made:

1. Of the practical bounds within which smoke emission may be confined now, taking emergencies and all valid excuses into account, and defining them for the information of fuel consumers and for the guidance of the authorities in dealing with them.

2. A determination of the quantitative and economical limitations of various devices and their adaptability to special requirements.

To do this work a paid expert commission will be necessary, and the expense of such a commission should be borne by the public. That of preparing for test should be borne by the promoters of each device, and the cost of testing in part by promoters and in part by the public.

Finally, we call attention to a matter, seldom thought of in this connection, relating to the plan and construction of buildings.

The modern business building nearly always contains a steam plant for heating and other incidental uses. This plant is not regarded as revenue producing direct, and architects as well as owners are disposed to place it so as to occupy the least possible space. Hence it is in most cases inconveniently located, cramped for room and but little regard paid to ventilating. Flues and chimneys are often unskillfully proportioned, and the comfort of attendants so little considered that they can do no better than stuff the furnace and go out to breathe.

**Recommendations.**

In view of the facts and considerations presented above, your committee would respectfully make the following recommendations and urge immediate action upon them:

1. The introduction in the municipal assembly of two ordinances (drafts of which are herewith presented):

*a.* An ordinance declaring the emission of dense visible smoke to be a nuisance and providing for the suppression thereof within 180 days after the enactment of this ordinance.

*b.* An ordinance authorizing and providing for the making or regulating, limiting and defining permissible smoke emission; for testing of smoke preventing devices, and for the making of such tests and experiments as may be deemed advisable with a view to the abatement or suppression of the smoke nuisance.

2. The introduction in the Municipal Assembly of an amendment to the present boiler inspection ordinance with a view to regulating the size, proportions and fittings of boilers to be erected hereafter and the accommodations to be provided for such boilers.

3. That steps be taken at once to diffuse as thoroughly as possible among the public, especially housekeepers, manufacturers and railroad officials, such facts and figures and right information concerning these as may aid them in the early general adoption of smokeless fuels so far as they may be applicable, as:

*A.* In domestic establishments, anthracite coke or fuel gas.

*B.* In industrial furnaces, other than boiler plants, coke, fuel gas or oil.

*C.* For all switch engines and such as operate within the city limits, coke.

The following are drafts of the ordinances suggested:

*An ordinance,* Declaring the Emission of Dense Visible Smoke to be a Nuisance and to provide for the Suppression Thereof.

Be it ordained by the Municipal Assembly of the city of St. Louis as follows:

*Section* 1. The emission into the open air of dense visible smoke within the corporate limits of the city of St. Louis is hereby declared to be a nuisance. The owners, occupants, managers or agents of any establishment, locomotives or premises from which dense visible smoke is habitually emitted or discharged shall be deemed guilty of a misdemeanor, and upon conviction thereof shall pay a fine of not less than $10 nor more than $100. And each and every day wherein such smoke shall be emitted shall constitute a separate offense.

*Sec.* 2 The president of the Board of Public Improvements is hereby authorized and directed to appoint, with the approval of the Mayor, such inspectors, not exceeding five in number, as may be necessary to carry out the provisions of this ordinance. Said inspectors shall receive a salary of $100 a month each, payable monthly.

*Sec.* 3. The inspectors shall have a right to enter, in the performance of their duties, at reasonable hours upon all premises other than dwelling houses occupied by less than four families or tenants. They shall collect evidence of the facts in cases of the violation of this ordinance, and with the approval of the president of the Board of Public Improvements in each case shall report the same to the city attorney for prosecution. The inspectors shall be guided in the performance of their duties by instructions given by the Board of Public Improvements and approved by the Mayor from time to time.

*Sec.* 4. This ordinance shall take effect at the expiration of six months after its approval by the Mayor.

*An Ordinance,* Authorizing and Providing for the Making of Regulations Limiting and Defining Permissible Smoke Emissions, and for the Testing of Smoke-Prevention Devices, and for the Making of Such Tests and Experiments as may be Deemed Advisable with a view to the Abatement or Suppression of the Smoke Nuisance.

Be it ordained by the Municipal Assembly of the city of St. Louis as follows:

*Section* 1. The president of the Board of Public Improvements is hereby authorized and directed to appoint, with the approval of the Mayor, a commission composed of three competent persons, who shall not be directly or indirectly interested in the manufacture, sale or construction of any furnace or other article having practical relation to the production or prevention of smoke.

Said commission shall ascertain and report to the Board of Public Improvements the conditions and liabilities under which manufacturing and other parties cannot wholly or reasonably prevent the occasional production and emission of dense visible smoke. Such ascertained conditions and liabilities, when approved by the Board of Public Improvements and Mayor, shall be published, and thereafter shall constitute instructions to guide and limit the officials charged with the enforcement of smoke-suppression ordinances. And it shall be a valid and sufficient defense against any complaint that the offense charged comes within such recognized conditions and liabilities.

Said commission shall conduct and make practical tests of all devices for the prevention or suppression of smoke which shall be submitted to them, in accordance with the conditions hereinafter set forth, and shall prepare detailed reports, stating the facts and conclusions based thereon as to the efficiency of each such device, the conditions of its successful operation and the limitations to its efficiency. Said report shall be made promptly when any test is completed, to the Board of Public Improvements, which report may be rejected by said board if found to be unfair or untrue. If accepted by said board the report shall be published for the information of the public. Provided, however, that such acceptance and publication shall not be construed as an indorsement of the report by the city of St. Louis or as a recommendation for or against the device passed upon. Said commissioners shall also be called upon, by the president of the Board of Public Improvements, to make such tests and experiments as may in his judgment be needed to determine the applicability of special or smokeless fuels to domestic, locomotive or other uses, with a view to the abatement or suppression of smoke, and shall prepare detailed reports of the results, together with such conclusions and recommendations as in their judgment may be warranted by the facts, said reports to be made promptly and printed for the information of the public.

*Sec.* 2. The commissioners authorized by the preceding section shall receive in compensation for their services in ascertaining and reporting the conditions and liabilities of smoke suppression the sum of $1000 each, payable upon the certificate of the president of the Board of Public Improvements that such report has been made to and accepted by the Board of Public Improvements. For their services in conducting tests of devices and making report thereon they shall each receive the sum of $75 for each device tested and reported, and for conducting the special tests and experiments, as provided in the preceding section, $100 for each series of tests or experiments, together with a full report of the same, said respective sums to be paid on the certificate of the president of the Board of Public Improvements that the report of such test has been received and accepted by said board.

Incidental and necessary expenses for the above-described investigations and tests shall be allowed and paid for as other expenses of the office of the president of Board of Public Improvements.

*Sec.* 3. Any party having or claiming to have a plan or device whereby smoke can be prevented or suppressed, and desiring to have the same subjected to a practical test and determination, may do so on the following conditions:

1. He or they shall notify in writing the president of the Board of Public Improvements that such a test is desired, and with such notice shall file a full and complete description of the device, with all necessary drawings to show its character, construction and mode of operation. Accompanying such notice shall be a certificate of the City Treasurer that there has been deposited with him to the account of contract and other deposits the sum of $100.

2. If the president shall judge that the public interest and the probable merits of the device justify a test at the city's expense, he shall instruct the commission to make it, whereupon the sum deposited shall become the property of the city of St. Louis and shall be credited to the fund for testing smoke-prevention devices. If the said president shall judge that the public interests or the probable merits of the device do not justify a test at the city's expense, he may refuse it, whereupon the sum deposited shall be returned to the depositor. But the party interested may pay into the City Treasury the sum of $400 to the credit of the fund for testing smoke-prevention devices, and, upon the presentation of the Treasurer's certificate to that effect, the president of the Board of Public Improvements shall order the commission to make the test.

3. The party or parties submitting a device shall erect the same at the place designated by the commission, or at such other place as the commission may approve of, at their own cost and expense under their own supervision, with such provisions for the attachment of instruments as the commission may require, and, when fully ready, shall deliver the premises and equipment to the commission.

If the place is furnished by the commission such erection and delivery shall be made within 30 days after the place is put at the disposal of such persons, and after the test is closed said device and all its belongings shall be removed within 15 days after notice to that effect.

4. If after the test is begun, alterations or improvements are desired to be made the party interested must proceed as if submitting a new plan or device, unless the several commissioners shall each consent to such alterations and waive all claim for compensation for a partial test.

*Sec.* 4. Whenever the Mayor shall be of the opinion that the public interest does not warrant the further testing and reporting on devices, under the authority of the city of St. Louis, he shall notify the president of the Board of Public Improvements to that effect, in which event the existence of the commission, hereby authorized, shall terminate when tests already in hand shall have been completed and reported as herein provided.

Your committee believes that these two proposed ordinances embody the best form of municipal action in the premises. While, possibly, further discussion on the part of all interested in the subject may suggest certain modifications, the main point must be kept in view. It is, that the city government owes it to the manufacturing interests to present, first, the ways and means in which smoke may be prevented under existing economic conditions, before it has the right to pass or inforce smoke ordinances similar to those of Cincinnati and Chicago.

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A large amount of iron work, including two bridges, will be required in elevating the grade of the Pennsylvania Railroad through the city of Elizabeth in New Jersey. The work will commence as soon as the temporary trestles can be erected, and the cost of the change is estimated at $600,000.

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## Improved Riveting Machine.

In Fig. 1 of the accompanying illustrations we present a general view of a riveting machine which has recently been placed upon the market by the Toledo Machine and Tool Company of Toledo, Ohio. The device somewhat resembles an ordinary press, with a projecting horn, which contains the riveting die. In operating the machine the makers state the first thing to be done is to place two rivets in the special grooves provided for the purpose, putting the edge of the bucket or pail over the rivets or against the gauge, when the ear to be riveted is also placed on top of the pail, this fitting into a gauge provided for the purpose. The treadle is then tripped, bringing the punch down in contact with the die and stock, forcing the rivets through the stock and the ear, while with a rapid movement the pail is brought toward the operator with the ear attached. This movement brings the pail against two spring stops, which are pressed downward during the first operation, and the slide or punch forced down the second time without removing the feet from the treadle. The result of the riveting process is shown in Fig. 2 of the cuts. The manufacturers state that this device is specially adapted for riveting ears on all kinds of tin pails and buckets, and it is claimed that a small boy with little practice can rivet from 15 to 20 gross of pails per day. We understand that the principal features embodied in this machine are the subject of a patent which is pending. The company are also making a complete line of power presses and other sheet-metal tools.

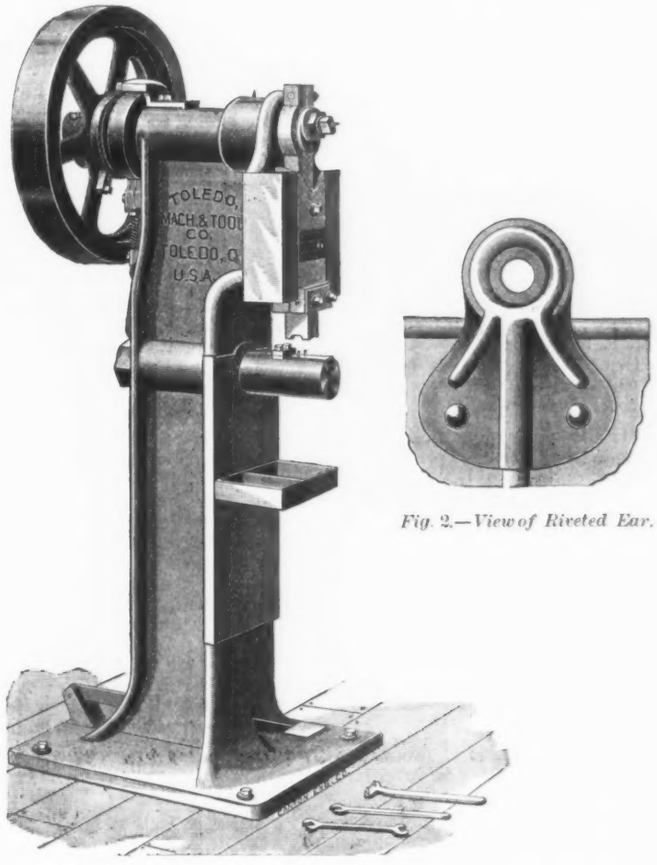


*Fig. 1.—General View.*



*Fig. 2.—View of Riveted Ear.*

IMPROVED RIVETING MACHINE.

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## Electric Locomotives.

A. Siemens has placed on record the performances of two electric locomotives, the most powerful of their kind, which were supplied at the end of the last year by Siemens Brothers & Co. to the City and South London Electric Railway. In the year 1888 the company, then called the City of London and Southwark Subway, issued a specification asking among other things for electric locomotives capable of developing a maximum of 100 brake horse-power. Owing to financial considerations the contract was not placed with Siemens Brothers & Co., although a perfect agreement had been arrived at on the technical points of the question. The City and South London Company, however, invited Siemens Brothers & Co. again in the beginning of last year to tender for locomotives in accordance with a specification practically identical with that agreed upon in 1888, and as a result two electric locomotives have been built and are now working. Each locomotive carried two motors, and the use of all gearing is obviated by winding the armatures of the motors on the axle of the wheels of the locomotive.

The motors for the two locomotives were tested before they were fitted into their places by means of a Prony brake, and some of the results of this first set of tests are given in the following table:

*Table A.*

| Speed in miles per hour. | Electrical horse-power put into motor armature. | Electrical horse-power put into motor magnets. | Total electrical horse-power per motor. | Total electrical horse-power per locomotive. | Brake horse-power measured. | Efficiency. |
|---|---|---|---|---|---|---|
| | | | | | | Per cent. |
| 12.25 | 56.96 | 2.8 | 59.76 | 119.52 | 11.0 | 92. |
| 14.77 | 24.42 | 1.21 | 25.63 | 51.26 | 47.1 | 91.87 |
| 15.7 | 21.5 | 0.86 | 22.36 | 44.72 | 40.2 | 89.89 |
| 17.85 | 21.85 | 0.74 | 22.59 | 45.18 | 42.62 | 94.32 |
| 22.73 | 29.23 | 0.35 | 29.58 | 59.16 | 54 3 | 91.79 |
| 24.7 | 19.5 | 0.2 | 19.7 | 39.4 | 36.6 | 92.68 |
| 30.6 | 26.27 | 0.17 | 26.44 | 52.88 | 48.76 | 92.19 |

Since the two locomotives have been set to work on the railway they have had to keep the same time as the others, so that their full power cannot be utilized, but it has been found that their efficiency is satisfactory in every respect. Observations of the current and electro-motive force have recently been made simultaneously, by taking sets of readings on the ammeters and volt-meters, both at the generating station and on the locomotive. From these observations curves have been plotted. At the times these observations were made the locomotives had run about 8000 statute miles, and on all four motors the brushes were wearing at the rate of about ¼ inch per 1000 miles run; this small wear being a consequence of the motors running sparkless and practically without heating. An examination of the curves show that there is no similarity whatever between those representing the volts at the generating station and on the locomotives respectively; this is, however, easily explained by the consideration that the volts at the generating station are influenced by all the trains in motion at the same time, while the volts on each locomotive are principally influenced by the demand of the locomotive itself.

When the train is started the current is regulated by the driver, so as not to ex-

ceed a certain amount, by means of switches inserting resistances into the main circuit; but these resistances are cut out within half a minute of starting, so that the waste of energy in the resistances is kept as low as possible. Each locomotive fully equipped weighs 13½ tons, and the weight of the train of carriages it has to draw is about 21 tons. To this the weight of the passengers has to be added. A summary of the results in working was also given.

## THE WEEK.

The growth of the commerce of Liverpool during the present century is perhaps without a parallel in an old country, the tonnage of the port having increased from 450,000 tons in 1800 to 7,933,620 tons in 1880. But there are signs already visible of the decadence of this great commercial capital. For some years the railroads have been taking away her coasting trade; an immense volume of her foreign business will soon be lost at one blow on the completion of the great Manchester ship canal, and now it is reported that one of her greatest transatlantic steamship lines, the Inman, is to be transferred to Southampton.

Bids for the new fireboat in Philadelphia range from $50,000 to $64,000.

Over 400,000 immigrants have landed in this country during the last seven months, against 371,378 during the corresponding months last year.

The engineers having inspected the Chesapeake and Delaware Canal, with reference to its capacity for enlargement to ship canal dimensions, it is proposed to form a company to push the enterprise. The estimate of cost is nearly $2,500,000.

From the last report of the Federal Commissioner of Labor it appears that in the 24,518 strikes on record in his department between the years 1881 and 1887 the strikers sustained an aggregate loss exceeding $50,000,000. This refers only to the direct loss of wages, and takes no account of the loss to employers.

The shipyards on the lakes have in prospect so many contracts that they are confident that business will be brisk all through the coming winter. The new tonnage includes two steamers that will cost over $500,000, and four others, "great steel flyers," will cost $1,250,000.

The French Government recently decided on organizing in each colony a commercial museum of products of the metropolis, to which agents would be appointed to give information as to prices, &c., to permit exporters to compete with similar imports from foreign countries.

Some of the principal Boston street railways have been purchased by a New York syndicate for $6,000,000, and 140 miles will be changed from the present horse system to electricity.

It is now almost definitely settled that the Americanized line of Inman steamers will make Southampton their port for the receipt and delivery of mails and passengers, rather than Queenstown and Liverpool. The saving of railroad travel as compared with Liverpool will be 107 miles.

The Dismal Swamp Canal of Virginia has been purchased by Ross & Sanford, the well known contractors, of New York, who propose to develop a valuable timber region.

For the harvest year 1891–92 California wheat exports were 805,000 tons. This year they will probably be more and possibly reach the million-ton limit.

London is to have a new steel bridge to replace the existing structure across the Thames at Vauxhall, which is 77 years old. The foundations of masonry are insecure. The estimated cost is $1,900,000.

One of the elegant steamers on the Havana lines has just made the run in 3 days and 6 hours.

The invention of white brick is likely to introduce a popular building material, and other colors will probably be manufactured.

C. P. Huntington desires that the subsidy of $850,000 a year paid by the transcontinental railroads to the Pacific Mail Company be discontinued.

There are various estimates of the numerical strength of labor organizations in this country. The figures given below were prepared by an authority in Philadelphia, and may be accepted as approximately correct:

| | |
|---|---|
| Total membership of national and international labor unions affiliated with the American Federation of Labor | 588,617 |
| Local unions not attached to any national organization | 10,000 |
| Total | 598,617 |
| National unions not affiliated with the American Federation | 98,000 |
| Membership of the Knights of Labor (estimated) | 3 0,000 |
| Total | 996,617 |

These several organizations cannot be regarded as a unit. In the labor struggles of 1886 and 1887 the Knights of Labor acted alone, while the American Federation performed the *rôle* of spectators. At the present time the relative position of the two bodies is reversed.

Real estate in Chicago has received such a boom from the World's Fair that two banks that were liable to fail now have a surplus, one of them equal to $1,500,000.

The largest rice crop since the war will soon be gathered in the Southern States.

Israel Putnam's old wooden plow, which he hastily left in the furrow at Pomfret, Conn., to join the Continental army, has for a year or more been used as a sign in front of a hardware store in Danielsonville. The plow point and cutter are of wrought iron, the only pieces of metal in its composition.

The assessed valuation of property in Boston has increased, as compared with 1891, $38,863 000.

The belief in Europe that the Sherman law will soon be repealed is supposed to be the cause of the recent decline in the value of silver bullion; but before and back of this is the fact of excessive production.

Philadelphia is having good success in extending its foreign trade by establishing regular lines of steamships, but all the vessels employed are of foreign build. The capital required is so large that until the promoters of a line are assured of success foreign bottoms are chartered.

The new four-masted steel barge built by the Delaware River Iron Ship Building and Engine Works, at Chester, for the Standard Oil Company is 240 feet long, and has a capacity of 750,000 gallons. She is for the coastwise trade.

The tables have been turned on union men in Newark, N. J. The stonecutters who recently took the places of strikers have formed a progressive union and notified the bosses that the old union men must join their organization or be discharged.

Within the past six months there has been an extraordinary influx of American currency, particularly silver and silver certificates, into Canada. They are accepted at par by the grocer in silver, and by the banks when in paper. There has never been so great a volume of United States currency in circulation since its expulsion in 1870 as there is to-day. The total is supposed to be $4,000,000 to $5,000,000, taking the place of Dominion silver notes.

The Jewish colonies planted in Argentina by Baron Hirsch are reported to be in a deplorable condition, for which various causes are assigned. One of the most promising, however, is to be repeopled, and as all the agricultural conditions are favorable better results are hoped for.

By means of improved barges, similar to those used on the lakes, it seems probable that the Alabama coal fields will before long supply the increasing demand in Mexico.

The Canadian Pacific Railroad Company are building an extension along the Canadian side of the Niagara River in expectation of scooping the New York Central and by means of boats to Detroit securing a large share of European travel to Chicago.

Peru offers an extensive market for California wheat.

The new three-screw steamer Richard Peck, built by the Harlan & Hollingsworth Company for the New Haven route, on her trial trip made 20¼ miles an hour and will be the fastest boat on Long Island Sound. She measures 2906 tons.

California dried fruit, especially currants and raisins, is driving the imported varieties from the New York market and revolutionizing the trade.

The disappearing gun carriage (described in *The Iron Age* February 4, 1892), an American invention operated by compressed air, was successfully tested at Sandy Hook last week. The carriage is designed for disappearing gun batteries, and is so arranged as to allow the gunners to lower the piece out of reach of the enemy and there to load and sight it in readiness for the next shot. When all is ready the gun rises in the air at the right angle and in the right direction and is then discharged. It sweeps the horizon through an arc of 120°, and may be elevated so as to fire a shot at an angle of 20° or less. The gun is connected with the carriage by two enormous swinging arms It rests on a plunger 5 feet long, which fits into an air-tight cylinder 24 inches in diameter. The gun is raised on the arms by forcing compressed air into this cylinder. It is elevated or depressed also by compressed air. It traverses the arc of 120° by another compressed air arrangement.

A 20,000 candle power electric light on Mount Washington is so powerful that coarse print can be read 7 miles distant. Its distance from the sea level is nearly 1¼ miles in a rarefied atmosphere.

The first train over the Great Northern system to Spokane left St. Paul 13th inst., inaugurating a new transcontinental route.

A London dispatch says the condition of the labor market is not very promising in Great Britain, and the outlook for the workmen in many trades is disheartening.

President Harrison's retaliatory proclamation, issued by direction of Congress, directs that from and after September 1 next a toll of 20 cents per ton be collected on all freight passing through the St. Mary's Falls Canal in transit to any port in Canada, whether carried in United States vessels or vessels of other nations.

John H. Buxton, Laurel, Md., has obtained from the commissioners of Crisfield, Md., franchise to erect water works with a stand pipe 70 feet high. Eight-inch pipe will be used.

# The Iron Age

New York, Thursday, August 25, 1892.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - - EDITOR.
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.


## Sunday at the World's Fair.

Although Congress seems to have pretty thoroughly settled the Sunday question at the World's Fair by ordering it to be closed on that day if the appropriation is accepted, there is a strong disposition among the people generally not to consider the discussion closed, in spite of the act of Congress. The demand for Sunday opening comes largely from the working classes. They are petitioning the World's Fair managers in great numbers to endeavor to secure the repeal of the Sunday closing clause in that act. The sentiment on this question seems to be practically unanimous among the workingmen in favor of throwing open the gates of the exposition on that day of the week as well as on the other six. Those who do not mingle with the working classes are not aware of the strong feeling entertained on this subject. The workingmen do not ask that machinery shall be kept in motion for their benefit, but they ask the privilege of being permitted to view the exhibits on the day when they are not obliged to labor for the means of sustenance. From the rapid growth of public sentiment on this subject it will not be surprising to see such a demonstration next winter in favor of amending the act of Congress that both Houses will concede the demand. Instead of considering the provision for Sunday closing as an expression of religious sentiment, the workingmen are bringing themselves to regard it as a direct affront given to their particular class.

## The Trades Union System.

Trades union organizations have exerted a powerful uplifting force among all classes representing mechanical labor, in so much that the skilled artisan and common laborer alike enjoy a degree of prosperity and command an influence greater than ever before. They have given shape to legislation not only in State legislatures, but in the Federal Congress. Our prison regulations and immigration laws have been modified in essential particulars through the influence of these organizations. In view of the ends already accomplished, how stupendous the folly of those who, by acts of lawlessness, by incendiarism, violence and actual murder, place large bodies of men in the attitude of criminals, who oppose all the constituted authorities, and, therefore, must be brought into subjection by military force? From being respected citizens, supporters of law and order, these same men at once take rank with thugs and anarchists. No course could be more condemnatory and self-destructive.

Instantly the original subjects of contention are forgotten and all sympathies alienated in the universal determination among good citizens to suppress lawlessness at any cost. The consequences of such a revulsion in public feeling cannot be otherwise than detrimental to the interests of organized labor. Certainly the solicitude of all those interested in the advancement of the workingman in material prosperity will confess to a feeling of keen solicitude. One of our contemporaries, who possibly may be gifted with at least average foresight, discourses as follows:

It does not require a prophet nor the son of a prophet to foretell the fate of the trades-union system. Its end is not yet, but its doom is written beyond recall in the madness of its counsellors. It cannot stand upon the principles it asserts and attempts to enforce. They are subversive of the most sacred human rights, and no permanent structure can be reared on such a foundation. The organized strike is itself unfair, illegal and oppressive. It is an attempt to coerce an employer into the making of a contract the terms of which are dictated to him under a threat of ruining his business. If this use of the force thus acquired was all it attempted it would be justly condemned. But it goes on, and the strikers not only refuse to work unless they can also rule, but they declare that their late employer shall hire no one else If others offer to take their places we know what will follow; there will succeed vituperation, personal violence, riot, murder, arson, and a wild frenzy under apprehended defeat that stops at nothing possible to the most reckless outburst of human passions.

The assumption by any man or body of men of the right to prevent another from working on such terms as may be deemed satisfactory is untenable beyond a question, and cannot be maintained in any court of justice under the American system of government. Personal liberty in the choice of any honest vocation is the inalienable right of every citizen, and men banded to dispute this freedom are liable to suffer the consequences. Just at this point the trades unions have advanced too far. Presumption in this respect is fraught with peril.

There is another point deserving of careful consideration: May it not be that what is sometimes called "the revolt of labor" in at least three States simultaneously, making necessary the employment of an armed force, is nothing else than the culmination of efforts ingeniously conceived and sedulously fostered to prevent competition in labor? Take notice that the recent contest against labor saving machines was of short duration. Then followed the abolition of the apprenticeship system, hostility to prison labor and the exclusion of contract labor from Europe. The next move was in behalf of an eight-hour day. Remarkable success has attended these endeavors. But to carry out the program in its completeness, those men who refuse to join the unions must in some way be suppressed. The presence of this non-union element in the labor field is an insuperable difficulty, because from this source the places vacated by strikers are liable to be instantly filled, a circumstance which explains every failure. If in this day and generation, despite the successive efforts to peg up the value of labor, as above epitomized, there still remains an unemployed surplus ready to take advantage of every emergency, provided protection from physical injury can be had, it must be confessed that the strike system has broken down. The boycott is nothing better than conspiracy, and the strike without compulsion in some form accomplishes nothing.

In the face of facts so fully demonstrated, it is amazing that similar excesses are again committed, and this without first exhausting the possibilities of arbitration. By an overt act, a body of men who may have been entitled to redress become outlaws to be forcibly subdued. The question is no longer one of individual rights, but the supremacy of law. It is useless for labor leaders to disclaim responsibility for excess, if no effort is made to punish the offenders and aggravated crimes are either winked at or referred to with mere expressions of regret. At the present time organized labor, to preserve itself from disintegration, must repudiate those who countenance injustice, violence and rapine. Trades unions may not be "doomed," as prophesied, but they may be held to strict accountability, without any abridgment of individual rights.

## Chicago's Continued Growth.

The census of Chicago, just completed under the supervision of the Board of Education, shows the exact population of the city to be 1,438,010. On the basis of partial returns a short time since, the population was estimated to be about 1,450,000. The correct figures, therefore, fall a little below the estimate, but not very much. This census is understood to have been carefully taken and to be in every way reliable. The figures show that the rapid growth of the city in the last decade is being maintained in this, and those who prophesied in 1890 that the census of 1900 would show the population to have again doubled in a decade have pretty substantial basis on which to rest their claims. The growth of that city is simply beyond all precedent. The stupendous preparations for the World's Fair may be responsible for quite an accession to the population during the last year, which may be reckoned of a non-permanent character. But the great bulk of the rapid increase is undoubtedly caused by the tremendous growth of manufacturing enterprises. To all appearances the movement of manufacturers from various sections of the country to the vicinity of Chicago has not reached its hight. New schemes are constantly coming to light. Old enterprises are expanding. Only a few years back the erection of a large block in the heart of the city to house groups of small manufacturers was a matter of much comment, but now much larger and finer buildings of this character are being added from time to time without exciting any special

remark. The suburbs are growing also at a prodigious rate, although they may be far from the influence of the World's Fair, the stimulus coming chiefly from the erection of new manufacturing establishments. Iron and steel works are not so prominent among these newcomers as was the case a few years since, the industries being more diversified; but there are enough of them to make an important constituency for those who look after that class of trade.

### Practical Plans for Good Roads.

There are some business questions pressing for solution which are of far greater importance than any political issues now before the people. Among them is the absolute necessity of providing better country roads. The agitation for the adoption of practical methods for the improvement of roads is not only gathering greater force with each month, but results of value are at last being accomplished. The Western States are taking the lead in the movement. It is perhaps fitting that they should do so, because they have been so recently settled, comparatively speaking, that their people were not obliged to build roads, their migration into new territory having often been preceded by the building of speculative railroad lines. Hence their need of good roads is greater than in the older communities.

Within the past week great conventions of the people have been held in the States of Iowa and Missouri, which were called for the sole purpose of devising means for improving ordinary roads. It was felt that mere talk had gone far enough, and that the time had come for some specific action. These conventions were composed of citizens representing almost every business interest in the State, and cities and towns sent delegates as well as strictly rural districts. No suggestion of party politics crept into the organization of the conventions, the utterances of the speakers or the resolutions adopted. It was felt that the improvement of roads was a purely business question to be treated in a business-like manner.

The Iowa convention, which was held at Des Moines, made a very good start in the direction of awakening public sentiment. Able papers were read on various phases of the subject, and a permanent organization was effected, which will continue the work thus inaugurated. The time-honored system of permitting farmers to work out their road tax was condemned, and plans were devised by which road districts could be created and empowered to issue bonds for road improvement, the work to be done in the same practical manner as any other public improvement. It was resolved to agitate in the cities and towns the expenditure of money beyond their mere municipal limits in improving the highways leading thereto. This would seem to be highly proper, as good roads leading into a town or city certainly stimulate business and add to the municipal growth. A resolution favoring legislation requiring the use of broad tires on wagons was referred to the Executive Committee of the permanent organization. Another convention is to be held before the next Legislature assembles.

The Missouri convention met at Chillicothe. It was also well attended by all classes of citizens from every part of the State. The condition of ordinary roads under existing methods was deplored, and many suggestions were made as to how they could be improved. Papers were read on the various questions involved in the construction of good roads. The spirit of the convention is shown by the following extract from the report of a special committee, which was adopted after considerable discussion:

We recommend that roads be classified into three grades or classes. Macadam, gravel or turnpike roads shall be of the first class, well graded or thoroughly drained dirt roads shall be of the second class, and ordinary ditched or graded dirt roads shall be of the third class. Roads of the first class shall be constructed in sections of not less than 1 mile in length, upon the petition of a majority of the property owners abutting the same, and not less than 25 per cent. of the costs thereof to be paid by said property owners or by voluntary subscription. Roads of the second and third classes to be built entirely at the cost of the county. Congressional districts or municipal towns, as nearly as practicable, shall constitute road districts, and roads shall be as nearly as practicable located on sectional or subdivisional lines, and when not practicable on these lines then according to the geographical features of the county, and each district shall be in the charge of and under the control of a roadmaster or employee of the county, who shall be employed by and under the control of the County Court.

Sources of revenue were also suggested to the Legislature by the committee's report, among other things the suggestion being made that the credit of the State should be loaned to the various counties to the extent of 10 per cent. of the assessed value of the property in each county, so that bonds may be sold for the purpose of building roads. This seems eminently proper, as municipalities improve streets in this way. If they issue bonds for the purpose of making such improvements, it seems perfectly proper for counties or Congressional districts to do the same thing to improve rural facilities for intercommunication. At Chillicothe many manufacturers of road-making machinery exhibited their appliances for such work, and tests were made for the purpose of demonstrating the efficiency of scrapers, ditchers, loaders, &c. The broad-tired wheel also came into prominent notice through tests of wheels with tires of several widths.

It is to be hoped that the movement for good roads now successfully inaugurated will not be allowed to languish, but that all classes of business men throughout the country will add their influence to the agitation. The farmer is most vitally interested, but he does not stand alone by any means. On his prosperity depends a very large part of the prosperity of the entire country.

The failure of the Gould lines to be represented at the meeting of the Western Traffic Association in Chicago, 18th inst., is regarded in railroad circles as evidence of coming dissolution.

## CORRESPONDENCE.

### The Tennessee Coal, Iron and Railroad Company.

*To the Editor:* The statements respecting our business on pages 295, 297 and 299 of the *Iron Age* of the 15th inst. are wholly incorrect. We have neither blown out nor banked a single furnace, either as the result of "the present condition of trade" or the riots among the miners. We stopped two furnaces at South Pittsburg for about 36 hours to clean flues and to make some steam connections to some new boilers. Every furnace we are in the habit of running is being run to-day to its fullest extent and our business is going on precisely as usual. Yours truly,

TENN. C., I. & R. R. Co.,
By J. BOWRON, Sec. & Treas.
NASHVILLE, TENN., August 20, 1892.

## PERSONAL.

Prof. Arthur T. Woods of Washington University, St. Louis, Mo., has become a member of the editorial staff of the *Railroad Gazette*, and will be stationed at Chicago, where he will come in association with D. L. Barnes.

W. L. Pierce, secretary of the Lidgerwood Manufacturing Company, New York, Chicago and Boston, was among the many who sailed last week on the Teutonic for Europe. Mr. Pierce, we understand, goes abroad both for pleasure and business, and will not return until October 1.

W. H. Singer, of Singer, Nimick & Co., Limited, steel manufacturers, of Pittsburgh, has sailed for Europe on a pleasure trip, and expects to remain abroad about three months.

C. C. Crowther, for some years manager of the blast furnace of the Norton Iron Works at Ashland, Ky., has resigned his position, to take effect on September 15 next.

After a service of over 11 years, W. A. Wetmore has resigned his position with the Colorado Coal & Iron Company, and will, after a short time, engage in the brokerage business for all the iron and steel products in Denver, Col.

The friends of John Fritz, general superintendent of the Bethlehem Iron Company of South Bethlehem, Pa., are arranging for a reception and dinner in his honor at the Wyandotte House, Bethlehem, on September 28. Mr. Fritz has just reached his seventieth birthday.

J. R. Webb, superintendent at the Windsor Locks Steel Works, Windsor Locks, Conn., has resigned.

J. A. Campbell, who has had charge of the Warren Rolling Mill as superintendent, has been appointed manager of the Union Iron and Steel Company.

The Treasury Department has decided that a foreigner who makes a contract in this country to work here and then returns to his own country cannot come back to the United States for the purpose of fulfilling the contract without violating the provisions of the alien contract labor law.

The Chattanooga Southern Railroad has made connection with the Chickamauga and Durham Railway. This will have a marked effect on the iron making interests of the Chattanooga district, as the coal from the Durham mines is better adapted for making coke and the price considerably less than that now in use. Two hundred coke ovens will be built at once at Chickamauga.

## Benjamin G. Clarke.

Through the large interests with which he was identified, and through his own personality, no man occupied so prominent a position in the Eastern iron trade as Benjamin G. Clarke, who died at Antwerp on Friday, August 12, 1892. Through the courtesy of Dr. Gray, a schoolmate and life-long friend, we are enabled to present the accompanying reproduction of a portrait, which was taken only a few years since, and shows Mr. Clarke as he was best known to those who had occasion to transact business with him at his office in this city.

BENJAMIN G. CLARKE.

Benjamin G. Clarke was born near Easton, Pa., in 1820, his earlier business successes being associated with the management and ownership of the old Merchants' Hotel in Cortlandt street, New York City. It was at this time that he joined with the Thomas interest in establishing the Thomas Iron Company, and he assumed the management of the sales of that company, thus entering the iron trade, in which, for over a generation, he was one of the most conspicuous figures. As a seller of pig iron Mr. Clarke followed consistently a policy which was unique, and which, while it was frequently and violently disparaged in the trade, always had the justification of signal success. It secured for his company the very best customers, who loyally adhered to him and enabled the company to attain an unparalleled record in the matter of immunity of bad debts. Thus the excellent technical management at the furnaces was backed by a clever and far-sighted business policy in the sales department.

Mr. Clarke became identified in later years with the Lackawanna Coal & Iron Company, and was a prominent figure in the steel rail trade from the early days of its development in this country.

It was characteristic of him as a business man that he was not swayed easily by the daily fluctuations in sentiment as affecting the markets, but that he took a broad, conservative view of the general situation, and then acted either as a cautious seller or a very vigorous competitor, whom sharp, open concessions did not frighten when it became a question of securing desirable business. When he did cut prices he did so openly, a fact which had a good deal to do with establishing for him a life-long reputation as a leader in the trade.

Closely allied with the industrial interests of Moses Taylor & Co., he was president of the New Jersey Zinc & Iron Company, well known as an exceptionally successful concern. He was first the receiver and later the president of the Oxford Iron Company of Oxford, N. J., and was largely identified with the Franklin Iron Company of Franklin, N. J., the Chestnut Hill Iron & Ore Company, the Tilly Foster Iron Company of Brewsters, N. Y., the Mount Hope Mining Company, and the McNeal Pipe & Foundry Company. He was associated with the Harvey screw patents, and was deeply interested in the Harvey process for treating armor plate. He was also president of the Harvey Steel Company of Newark, and took an interest in the development of the Conkling magnetic separator.

He was never in public life in any sense, though he took a prominent part in the financial transactions of the Government during the war. At that time he lived in Jersey City, and when the Government needed assistance he responded most liberally. After the war he removed to this city, and for a great many years made his home at 326 Madison avenue, in a fine large house. During

the lifetime of his wife he was frequently seen in society, but after her death his social life was confined almost entirely to the clubs of which he was a member. The Union League was his favorite resort, but he was also frequently seen at the Down Town Club.

At a joint meeting of the Board of Directors of the Lackawanna Iron & Coal Company and the Lackawanna Iron & Steel Company, held at 52 Wall street, in the City of New York, August 16, 1892, the following minute was unanimously adopted:

No formal minute inscribed upon their records can express the deep sorrow and sense of irreparable loss felt by the directors of these companies as they assemble at the boards from which the presence of Benjamin G. Clarke, their associate, counselor and personal friend, has been forever removed.

A few days ago we bade him adieu as he left to recuperate his health, with the fond expectation that in the early autumn we would welcome him back to his usual place, but his allotted earthly course was nearing its limit, and on Friday, August 12, 1892, a few days after his arrival at Antwerp, Belgium, he passed away.

In briefly reviewing his career, we find that while the iron interests of this country were yet in their infancy, Mr. Clarke, as a sagacious business man, foresaw the possibilities of the future, and with his accustomed vigor entered upon their development. Before he became identified with these companies he had become an authority in the iron trade. It was this that led the managers of these in erests to desire to have Mr. Clarke associated with them in the conduct of this great industry. Their wisdom has been demonstrated in the success which has been achieved, as the present flourishing condition of these companies and their auxiliary interests is so largely due to his progressive and discreet views in the management of their affairs. He became a director of the Lackawanna Iron & Coal Company August 1, 1877, and chairman of its Executive Committee January 1, 1881, and filled the same positions in the Lackawanna Iron & Steel Company from its organization in 1884. But it was not only as an able business associate that he was esteemed. His sterling integrity, his large hearted philanthropy, and his genial disposition endeared him to a large circle as a true and trusted friend. The memory of his many noble qualities will long be cherished, and his loss will only be intensified as the years pass away.

While we would not intrude upon the sorrow of the afflicted family, we express to them our sincere sympathy in their bereavement and mourn with them over the great loss which they and we have sustained.

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The Maritana, the new steamship just completed by the Chicago Shipbuilding Company, left Chicago at 7 p.m. last Saturday, arriving at Escanaba 8 p.m. next day; commenced loading early on Monday, and left at 3 p.m. with 4218 gross tons Iron Ore for Illinois Steel Company, South Chicago, the largest cargo ever afloat on the lakes.

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The Umbria has beaten her own record again, this time on her eastward trip, crossing the ocean in 5 days, 22 hours and 45 minutes, beating the record for single-screw steamships by 4 hours, 19 minutes, and making time but 1 hour and 42 minutes longer than that of the twin-screw steamer Teutonic, made on the only quicker eastward passage. The Umbria's last westward passage was but 38 minutes quicker, and this made a record for the vessels of her class.

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One of the largest and strongest steam dredges ever built has just been completed by A. Merritt, the shipbuilder of Quincy, Mass. She is 93 feet over all, has a steel deck and is equipped with two Lidgerwood engines, besides a large suction pump and powerful search light.

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The Bellaire Steel plant, at Wheeling, W. Va., was started on Monday.

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The Mingo steel plant in the Wheeling district was to start yesterday.

## The Situation at Homestead.

Events that occurred during the past week at Homestead have shown very conclusively that the decision of the authorities to keep State troops there until all signs of trouble have disappeared was a wise one. Several outbreaks occurred between the soldiers and the strikers, during which shots were exchanged, but fortunately no loss of life resulted. The first of these, and the most serious one, was in the early part of the week, when some soldiers on duty near the Homestead Works were fired upon by men on a freight train that was in close proximity to the mills. An investigation is now going on to discover, if possible, whether the shots were fired by the train hands or by some of the locked-out men On several other occasions workmen in the Homestead Steel Works who left the mill in order to make purchases at Homestead have been set upon by the strikers, and would undoubtedly have been injured had not some of the soldiers who were fortunately near came to their aid and escorted them back to the mill. As it is nearly two months since State troops were placed at Homestead in order to protect the Carnegie interests and the workmen who desire to enter the employ of the firm, the question naturally comes up, How long will this state of affairs continue? It is very safe to assert that just so long as the strikers allow themselves to be influenced and governed by the actions and expres sions of men of the McLuckie, Crawford and O'Donnell stripe, just so long will the presence of troops be necessary at Home stead. It is hard to conceive how men gifted with ordinary sense and judgment will allow themselves to be led about and used as tools by such demagogues as these men have proven themselves to be since the very commencement of the Homestead troubles. That some of the Homestead men at least are beginning to see through these men who pose as their friends is evident from the fact that serious internal dissensions are cropping out among the members of the famous Advisory Committee. A few days since McLuckie and O'Donnell left Homestead and went to Boston for the purpose, as they claimed, of raising money for the aid of the Homestead men. Their actions during their stay in Boston would indicate that the principal object of their visit was to attain cheap notoriety. In a three-sheet poster put up O'Donnell was billed in large letters as the "Leader of the Homestead workmen." We are not advised as to the manner in which McLuckie notified the good citizens of Boston that he had honored their city with a visit, but it was no doubt done so that it would give the people of that city to understand that an important personage was in their midst. During their absence the other members of the Advisory Committee commenced to compare notes, and the opinion was arrived at that O'Donnell and McLuckie had not been authorized to so represent themselves and that the trip had been made on their own responsibility to a great extent. Incidentally it may be mentioned that their traveling expenses are paid out of the funds that are supposed to be used in the aid of the strikers. The reception accorded these two men upon their return to Homestead is said to have been quite frigid, and some explanations were requested that may cause these two worthies considerable trouble to make. Surely among the large number of men who have already lost nearly two months' wages by their refusing to return to work while there remains an opportunity to do so, some can be found who will show them that they are making a hopeless fight, and that every day they continue in idleness their chances of ever again being employed in the Homestead Steel Works are rapidly lessened. Notwithstanding all the wild and untruthful statements of O'Donnell, McLuckie and others to the contrary, the fight for recognition of the Amalgamated Association at Homestead is lost, and has been since the riots of July 6, and the sooner the men realize this and endeavor to secure their old positions, if it is not already too late, the better for them and their families, that are already suffering because of their shortsightedness.

On Monday, the 22d, between 1800 and 2000 men were at work in the Homestead Steel Works at Homestead, Pa. This number is being increased as rapidly as is possible, from the fact that the firm are using great discretion in the class of men now being hired. The new Bessemer plant which was started last week met with a slight accident and was closed down for several days in consequence. During the shut down, in addition to repairing the break, some changes were made in the machinery, and on Monday morning of this week the Bessemer department started up double turn. Occurrences last week were of an ordinary character, and nothing of importance transpired. The firm state that they are well pleased with the progress of the work at Homestead, and feel certain that within a very short time the tonnage of the Homestead Steel works will be as large, if not larger, than before the present troubles commenced.

At the Upper Union Mills every department is on double turn, with the exception of one or two. Considerable of the product now being turned out is structural shapes to be used on the Alley Elevated Railroad in Chicago, for which enterprise the Carnegie Steel Company, Limited, booked an order early in the year amounting to about 12,000 tons. The report has gone out that much of the material being turned out at the Upper Union Mills was of a very inferior character. Donald Fraser, engineer of the Maintenance of Way for the Chicago Elevated Railroad Company, visited Pittsburgh for the purpose of inspecting the material turned out at the above works. In a recent interview Mr. Fraser stated that the steel which is being manufactured at the Upper Union Mills is all that could be desired. He states that every piece of material that was examined came up to the standard, and that the new men were doing excellent work.

A report having been circulated last week that steel would be used exclusively in the future at the Upper Union Mills, we are advised by an official of the Carnegie Steel Company, Limited, that for the past five months the average output was 70 per cent. of steel and 30 per cent. of iron. At the present time, however, nothing but steel is being worked in this plant, the puddling department being entirely closed down. However, some of the best customers of the firm still insist on having iron. In the future, however, it is very likely that but little iron will be worked up at their plant.

At the Lower Union Mills it was expected that operations would be resumed on Monday, the 22d, but it was decided, however, to postpone the starting of this plant for a few days, and it will probably be started up during the latter part of this week. As announced elsewhere, the Duquesne Steel Works have been taken off billets and put on rails, and this plant is expected to turn out about 5000 tons of rails per week.

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The Tudor Iron Works, St. Louis, Mo., agreed upon a scale of wages satisfactory to their men as well as to themselves, and are now running full throughout.

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Furnace F of the Carnegie Steel Company, Limited, at Braddock, was blown in on Tuesday of this week.

# The Steel Scales.

As we announced in *The Iron Age* of last week, Jones & Laughlins, Limited, of the American Iron and Steel Works, at Pittsburgh, signed the steel scale on Tuesday, the 16th inst., and their entire plant was started up on full time in all departments the next morning. Since that date the Bellaire Nail Works of Bellaire, Ohio, and the Laughlin & Junction Steel Company of Mingo Junction, Ohio, have also signed the steel scales and both plants are now in full operation. The only idle Bessemer steel plant in Pittsburgh on account of the wage scale not being signed is that of Shoenberger & Co. and this firm will probably effect a settlement with their employees before the end of this week. We print below the new steel scales under which the Bessemer plants of Jones & Laughlins, Limited, the Hainsworth Steel Company and the Laughlin & Junction Steel Company are now being operated. The scale of the Hainsworth Steel Company has been in force since October, 1891, but has never before been made public. It is as follows:

### Hainsworth Steel Company.

1. That the wages list be fixed on a permanent base of market price of 4-inch billets at $25 per ton, that for every advance of 25 cents in the market price of said 4-inch billets the said wages list shall advance 1 per cent. on the said $25 billet base rate, and for every decline in the price of 4-inch billets of 25 cents the said price-list shall decline 1 per cent. on the said wages list, but the price of billets in this adjustment is not to go below $25 per ton.

2. That the market price of 4-inch billets shall be ascertained as follows: The lowest published quotations as published in the Pittsburgh papers shall be taken for the entire quarter of 13 weeks; the average of this shall be ascertained, and the price shall be fixed at 50 cents per ton less than said average; this shall be done every three months or quarter and the wages for the quarter shall be the price ascertained above for the preceding quarter or three months; this fixing of price as above prescribed shall be done by six persons, three of whom shall be officers of the Amalgamated Association and three officers of the said Hainsworth Steel Company.

3. That this agreement is to extend to June 30, 1893, and to stand as it now stands, that it is to stand after that date until either party gives 60 days' notice, said 60 days' notice to be given previous to May 1 of each year; if not given before May 1 then the contract is to be held good for the year following the first day of the succeeding July.

4. That when the market price of 4-inch billets (as ascertained by the method prescribed in Section 2) is $25 per ton the wages list shall be as follows:

| Position. | Number of men. | Rate per 100 tons. |
|---|---|---|
| Metal wheelers (each) | 5 | $1.79 |
| Coke wheelers (each) | 2 | 1.62 |
| Cupola foreman | 1 | 3.23 |
| Cupola foreman's helper | 1 | 2.12 |
| Cupola cinder tapper (when regular) | 1 | 1.59 |
| Cupola cinder snappers (each) | 2 | 1.49 |
| Vesselman | 1 | 3.18 |
| Vesselman's helper | 1 | 2.12 |
| Vesselman's scrapper | 1 | 1.74 |
| Manganese man | 1 | 1.70 |
| Cindermen (when regular, each) | 3 | 1.93 |
| Steel pourer | 1 | 3.18 |
| Pitmen (when regular, each) | 7 | 2.53 |
| Capper | 1 | 2.12 |
| Stopper setter | 1 | 2.41 |
| Stopper carrier | 1 | 2.41 |
| Ladle liner | 1 | 2.38 |
| Ladle liner's helper | 1 | 1.97 |
| Pushermen (each) | 2 | 1.49 |
| Stopper maker (total tonnage) | 1 | .89 |
| Vessel-ladle crane regulator | 1 | 2.29 |
| Ladle crane rack and dump | 1 | 2.29 |
| Ingot crane regulators (when regular, each) | 2 | 1.47 |
| Bottom maker | 1 | 2.18 |
| Bottom maker's helper | 1 | 1.84 |

5. That the weights shall be taken at 2240 pounds per ton on all ingots taken from the casting pit, except such pieces as must be remelted in cupolas or vessels.

6. That the cupola forehand and two men shall each receive 100 tons credit at their respective scale price for the work of "fixing" the cupolas when done off their regular turn, this fixing turn to be limited to 12 hours.

7. That the vessel forehand and helper shall each receive 100 tons credit at their respective cale price for "fixing" vessels when done off their regular turn, this fixing turn to be limited to 12 hours.

8. That in case a stop is made of longer duration than 24 hours we shall be at liberty to employ such help on repairs at current laboring rates as may be available, preference being given to men of the converting department as far as possible.

9. That when an additional cupola is to be started on a regular turn the coke heaters shall put up all the coke needed for lighting it, and they shall put up all the coke needed for Monday's cupolas at close of previous week's work.

10. That all material needed for "scrapping" the vessels and for the manganese man shall be placed conveniently on their platform ready for use.

11. That in case of a breakdown in either department of the machinery or fixtures, causing a suspension of work for the remainder of the turn, the tonnage actually made up to the time of the breakdown shall be paid for.

12. In case of a mechanical breakage in operation of the plant, and the foreman requires the men to stay, pending repairs, the men shall receive 100 tons for that turn.

13. That a second helper, known as cinder tapper, shall be added to the force as soon as the cupolas are used in regular practice.

14. That a third pit cinderman shall be added to the force as soon as two cupolas are used in regular practice, and the three are to remove to the car loading wharf all cinder from the vessels and ladles.

15. That a second regulator for ingot cranes shall be added to the force as soon as two cupolas are used in regular practice.

16. That we are at liberty to order the men out in advance of the exact hour of starting, provided the advance does not exceed two hours.

BLOOMING MILL DEPARTMENT.

| Position. | Number of men. | Rate per 100 tons. |
|---|---|---|
| Roller | 1 | $4.11 |
| First roll hand | 1 | 3.08 |
| Second roll hand | 1 | 2.34 |
| Heater | 1 | 4.11 |
| Furnace bottom makers (six or ten pits, each) | 2 | 2.55 |
| Chargers (six or ten pits) | 4 | 2.39 |
| Covermen (six or ten pits) | 2 | 1.27 |
| Crane lever, with rack | 1 | 1.49 |
| Tail-in | 1 | 2.07 |
| Shear delivery tablemen | 2 | 2.00 |

17. That the weights shall be taken as recorded at the bloom-shear scales at 2240 pounds per ton for all merchantable steel rolled to standard sizes on the blooming mill.

18. That the furnace hands shall pile back, clean off the working floor, and without extra pay, any ingots and blooms but partly rolled that are sent back from the mill.

19. That the furnace hands shall pile all steel the metal for which may be in the cupolas at the time of the stoppage.

20. That the company is at liberty to make special arrangements with the men to charge the furnace on Sunday and bring up the steel for Monday's rolling, and all steel so brought up is to be rolled at hot steel rates.

21. That when blooming mill furnaces are supplied with cold ingots exclusively a credit of 100 tons shall be allowed all blooming mill tonnage men rolling it for a 12-hour turn.

22. That the roller and his helpers shall receive 100 tons credit at their respective scale price for changing rolls, sufficient supplementary force being supplied at the discretion of the foreman, and if one turn does not finish the roll-change, the total rate of 100 tons shall be divided between the two turns in proportion to the time spent by them in the change.

23. That paragraphs "11 and 12," relating to delays in operations from breakages, shall apply fully to the blooming department also.

24. That in case of the introduction of improved machinery or other improved methods whereby men may be displaced or their skill or labor may be reduced or increased, and a dispute arises between the men and the management, such dispute shall be referred to one officer of the Amalgamated Association of Iron and Steel Workers and the manager of the works; in case they fail to agree, they two shall call in a third man satisfactory to both of them, and the decision of a majority of the three shall be final.

The steel scale as agreed upon by Jones & Laughlins, Limited, and their employees last week, is as follows, the first four clauses being identical with those printed above:

### Sliding Scale for Jones & Laughlins, Limited, Pittsburgh, Pa.

CONVERTING DEPARTMENT.

Per 100 tons.

| Name of Job. | No. of men. | Rate. | Total. |
|---|---|---|---|
| Metal wheelers | 10 | $1.29 | $12.00 |
| Coke wheelers | 4 | 1.02 | 4 08 |
| Cupola foreman | 1 | 2.71 | 2 71 |
| " " 1st helper | 3 | 1.78 | 5.34 |
| " " 2d " | 1 | 1.33 | 1.33 |
| Ferro man | 1 | 1.78 | 1.78 |
| Vessel foreman | 1 | 2.66 | 2.66 |
| " " 1st helper | 1 | 1.78 | 1.78 |
| " " 2d " | 1 | 1.42 | 1.42 |
| Scrappers | 2 | 1.23 | 2.46 |
| Vessel cindermen | 3 | 1.62 | 4 86 |
| Steel pourer | 1 | 2.66 | 2.66 |
| Pitmen | 7 | 2.12 | 14.84 |
| Bushelmen | 2 | 1.78 | 3.56 |
| Sander | 1 | 2.12 | 2.12 |
| Stopper setter | 1 | 2.02 | 2.02 |
| Stopper carrier | 1 | 2.02 | 2.02 |
| First regulator | 1 | 1.62 | 1.62 |
| Second regulator | 3 | 1.23 | 3.69 |
| Ladle liner | 1 | 1.99 | 1.99 |
| Ladle liner helper | 1 | 1.65 | 1.65 |
| Stopper maker. Total tonnage | 1 | .75 | .75 |
| Bottom maker | 1 | 1.85 | 1.85 |
| Bottom maker, helper | 1 | 1 54 | 1.54 |
| Total | | | $80.73 |

The old scale which was printed in *The Iron Age* of October 29, 1891, showed a total of $108.45.

NOS. 1 AND 2 BLOOMING MILLS.

Per 100 tons.

| | No. of men. | Rate. | Total. |
|---|---|---|---|
| Heater | 1 | $4.25 | $4.25 |
| Bottom maker | 1 | 2.63 | 2.63 |
| " " helper | 1 | 2.19 | 2.19 |
| Chargers | 3 | 2.37 | 7.11 |
| Covermen | 2 | 1.32 | 2.64 |
| Roller | 1 | 6.15 | 6.15 |
| First roll hand | 1 | 2 63 | 2.63 |
| Second " | 1 | 2.41 | 2.41 |
| Shearman | 1 | 3.19 | 3.19 |
| " tailer in | 1 | 2.14 | 2.14 |
| " tongs | 1 | 2.41 | 2.41 |
| " hook | 1 | 2.14 | 2.14 |
| " buggy | 1 | 1.80 | 1.80 |
| Total | | | $41.69 |

For the same men the old total was $47.25.

It is also understood that the following stipulations be agreed to in the converting department:

1. That the weights shall be taken as recorded at the department scales, at 2240 pounds per ton, for all ingots as taken from the casting pit, except such pieces as must be remelted in the cupolas or converters.

2. That additional help be furnished in the metal yard, when in the judgment of the foreman in charge it may be needed.

3. That when an additional cupola is to be started on a regular turn, the coke wheelers will put up all the coke needed for lighting it.

4. That the cupola foreman and helpers shall be paid an allowance of 100 tons for fixing, when done off their regular turn.

5. That material for scrapping the vessels will be delivered to the scrappers on the second floor and as near the vessel nose as may be practicable; that the scrappers will hook-on, skim and unhook the transfer ladle, and that when the material thus used exceeds 1800 pounds per heat, additional help shall be furnished at scrapper's rate.

6. That the vessel foreman and one helper shall be paid an allowance of 100 tons for fixing, when done off their regular turn.

7. That eight hours shall constitute a turn when lining the vessels.

8. That they shall be paid 12½ tons per hour for all overtime above eight hours.

It is also understood in the blooming mill:

1. That the weights shall be taken as recorded at the bloom shear scales, at 2240 pounds per ton, for all merchantable steel rolled on the blooming mill.

2. That one spell hand shall be furnished at the shears for the months of June, July and August

3. That the roller and first and second roll hands shall each be paid an allowance of 100 tons at their respective rates, and the tongsman, tailer-in, shear-hooker and buggyman be paid an allowance of 100 tons at $2.75, for changing rolls, and if one turn does not finish the change, the total rate of 100 tons shall be divided among the turns in proportion to the time spent by them on the change.

4. That the week's work shall begin at 12.01 o'clock Monday morning and shall cease on Saturday at 3 o'clock p. m. In case of a break-down or other extreme urgency, the men will roll out the pit furnaces, if the extra time thus required does not exceed one hour.

5. That an allowance of 100 tons shall be made for Monday morning turn on Nos. 1 and 2 blooming mills, regardless of how much steel is made.

6. That in any class of work, whenever the firm may consider it necessary to put on extra help, the wages paid such help shall not increase the total cost per ton for such class of work.

In connection with the above scale it was agreed between Jones & Laughlins, Lim-

ited, and the Amalgamated Association of Iron and Steel Workers, that the engineers and transfer men in the employ of the firm should suffer no reduction, it being understood that where new appliances are introduced which dispensed with the necessity of any men heretofore employed, the wages of such men are to be dropped from the scale. The steel scale for the Bessemer plant of the Laughlin & Junction Steel Company of Mingo Junction, Ohio, was arranged on Monday, the 22d inst., and is as follows, the first four clauses being the same as those of the Hainsworth Steel Company.

CONVERTING MILL.

| Position. | Number employed. | Rate per 100 tons, 2240 lbs. |
|---|---|---|
| Cupola foreman | 1 | $3.24 |
| Cupola foreman's helper | 1 | 1.99 |
| Cinder tapper | 1 | 1.60 |
| Metal wheelers, each | 6 | 1.67 |
| Coke wheelers, each | 2 | 1.53 |
| Vesselman | 1 | 3.19 |
| Vesselman's helper | 1 | 2.01 |
| Vesselman's helper | 1 | 1.49 |
| Cinder Wheelers, each | 3 | 1.84 |
| Scrapper | 1 | 1.74 |
| Pit foreman | 1 | 3.19 |
| Pitmen | 6 | 2.53 |
| Cap setter | 1 | 2.12 |
| Ladleman | 1 | 2 18 |
| Ladleman's helpers, each | 2 | 1.48 |
| Stopper setter | 1 | 2 39 |
| Stopper carrier | 1 | 2.39 |
| Stopper maker, total tonnage | 1 | 84 |
| Bottom maker | 1 | 2.16 |
| Bottom maker's helper | 1 | 1.76 |
| Second regulator | 1 | 1.44 |
| Third regulator | 1 | 1.22 |
| Spiegelman | 1 | 2.55 |
| Spiegelman's helper | 1 | 1.32 |
| Pusherman, first | 1 | 1.46 |
| Pusherman, second | 1 | 1 43 |
| | | Per day. |
| Limestone wheeler | 1 | $1.40 |
| Metal yard laborers | 2 | 1.60 |
| Scrap lifter | 1 | 1.75 |
| Loom man | 1 | 1.60 |

BLOOMING MILL.

| Position. | No. emply'd | Rate per 100 tons 2240 lbs. | Per day |
|---|---|---|---|
| Roller | 1 | $4.11 | |
| Hookers, each | 2 | 2.34 | |
| Heater | 1 | 4.11 | |
| Soaking pit bottom makers, each | 2 | 2 55 | |
| Drawers, each | 3 | 2.09 | |
| Shearman | 1 | 3.09 | |
| Shearman's helpers, each | 4 | 2.07 | |
| Test boy | 1 | | $1.55 |
| Mold washer | 1 | | 1.50 |
| Pit laborer | 1 | | 1.75 |
| Dinkey engineers, each | 3 | | 2.00 |
| Switch boys, each | 2 | | 1.35 |
| Blooming mill crane boy | 1 | | 1.10 |
| Door puller | 1 | 1.36 | |
| Shear scrapper | 1 | 1.36 | |
| Crane boy at shears | 1 | | 1.25 |
| Blooming mill engineer | 1 | 2.55 | |
| Blowing engineer | 1 | | 3.00 |
| Second blowing engineer | 1 | | 2 70 |
| Greaser | 1 | | 1.85 |
| Wiper and oiler on eng. table and shears | 1 | | 2.25 |
| Machinist | 1 | | 3.00 |
| Machinist's helper, including carrying grease | 1 | | 1.90 |
| Water tender | 1 | | 2.40 |
| Panman | 1 | 1.44 | |
| Panman's helper | 1 | 1.36 | |
| Pipe fitter and sheet iron worker | 1 | | 2.00 |
| Skull cracker engineer | 1 | | 1.60 |
| Skull cracker foreman | 1 | | 1.80 |
| Carpenter | 1 | | 2.00 |
| Cinder runner | 1 | | 1.60 |
| | | | Per week. |
| Bricklayer | 1 | | $22.00 |

It is understood:

1. That when both furnaces are working, that both heaters and helpers shall get the run of the mill.

2. It shall be further understood that when on with cold steel exclusively heating shall be 39 cents per ton and helping 15 cents per ton, and the balance of the mill double tonnage.

3. It is further agreed that the company pay all tonnage men at the rate of 100 tons while on repairs, 12 hours to constitute a day on vessels and 8 hours on cupolas.

4. It is further agreed that in case of a mechanical breakage in the operation of the plant, and the foreman requests the men to stay pending repairs, the men shall receive 100 tons for that turn.

5. When changing rolls the full crew shall be ordered out and receive 100 tons for said change.

6. The company also agrees to furnish a man to grease the rolls, tables and shears.

7. It is understood and agreed that during the continuance of this contract the owners of the property, the Laughlin Nail Company and the Junction Iron Company, shall be supplied with the slabs from this plant.

8. It is further agreed that when on billets less than 4 x 4 a special price shall be paid.

In connection with the scales of Jones & Laughlins, Limited, and the Laughlin & Junction Steel Company it should be noted that there was no reduction whatever in the wages paid to day laborers, these remaining the same as the old scale of 1891–92. The steel scales in force at the above two plants for 1891–92 can be found by referring to *The Iron Age* of October 29, 1891.

# MANUFACTURING.

### Iron and Steel.

The entire plant of the Cherry Valley Iron Company at Leetonia, Ohio, is in full operation on double turn, with the single exception of the bar mill, which is running single turn. This company are adding a new department to their works for the manufacture of railroad links and coupling pins, which, when completed, will give employment to a large number of additional men.

As yet the Columbia Iron & Steel Company of Uniontown, Pa., have not succeeded in effecting a wage settlement with their employees. At a recent meeting of the Board of Directors of the company the following resolution was passed: "*Resolved*, That we insist upon a reduction in wages of 30 per cent. in the Bessemer department and 20 per cent. in the finishing department from last year's scale, and that no scale be signed unless these terms are accepted." Negotiations are still being carried on between the firm and their employees, and it it expected a settlement of the trouble will be secured at an early date.

In *The Iron Age* of August 11, we noted th fact that the Falcon Iron & Nail Company of Niles, Ohio, had commenced the construction of a plant for the manufacture of tin plates and sheets with a capacity of 800 tons of sheets for tinning and 500 tons of other sheets per month. We are now advised that the tinning house will have ten stacks with a capacity of about 2000 to 2500 boxes per day, which will run the output up to 6000 tons per year. The firm have placed a contract with the Lloyd Booth Company of Youngstown, Ohio, for all the roll trains including one 24-inch sheet train, consisting of one roughing and two finishing mills; one 22 inch sheet train, consisting of two roughing and two finishing tin mills; three 20-inch cold roll mills and one 22-inch cold rolling mill. The buildings will be erected by the Youngstown Bridge Company of Youngstown, Ohio, and will be constructed of iron and brick. The contracts for furnishing the engines have been let to Wm. Tod & Co., Youngstown, Ohio. The Falcon Iron & Nail Company are one of the most prominent and largest manufacturing concerns in the Mahoning Valley, and have undertaken the manufacture of plates and sheets for tinning on a large scale, and they confidently expect that the venture will prove to be a very successful one.

The cold rolled steel plant of Nimick, Jackson & Co., in Pittsburgh, Pa., was destroyed by fire last week, involving a loss of about $30,000. It is understood the firm will rebuild on a larger scale.

Bellaire Furnace of the Bellaire Nail Works, at Bellaire, Ohio, was banked down last week. The steel plant of this firm has also been idle since July 1 last.

We learn that the rapidly growing business of the Trenton Malleable Iron Company of Trenton, N. J., has necessitated a material increase of facilities in order to cope with the volume of orders received by them. Extensive additions are now being made to the plant, which are calculated to enable the company to double its present output. The annealing department is being increased to twice its original size, with two additional annealing furnaces, and a new building to house the core department, and chipping and counting rooms have been erected. The most important expansion is, however, that which is being made in the molding space, where 300 x 60 feet is to be added to the present shop, making it one of first-class proportions. A second hot-air furnace will also be placed. All the malleable iron produced by the company is made by this system, and charcoal iron is used exclusively in its manufacture. An unusually high grade of malleable metal is claimed to be made; and, we are told, that several tests of 60,000 pounds to the square inch are on record. Each heat is tested by means of a Rieble machine.

The extensive alterations and improvements which were undertaken by the Penn Steel Castings and Machine Company of Chester, Pa., in the works of the defunct Chester Foundry and Machine Company, of which they are in occupation, are being rapidly pushed toward completion. The renovated iron foundry is already in operation, as well as the machine shop, where the company are now constructing their own tools. The remainder of the plant will probably be completed and ready for work by the end of next month. A spacious building has been put up for the steel casting department, in which two furnaces of 25 tons capacity each have been placed, as well as two 30 ton electric traveling cranes, built by the Morgan Engineering Company of Alliance, Ohio, which underwent a satisfactory test last week.

The furnace of the Ohio Iron and Steel Company at Lowellville, Ohio, was filled on the 18th and blown in on the 20th. It has been relined and enlarged, and additional boilers have been added and other improvements made.

As yet no site has been selected for the erection of the new Bessemer plant to be built by the Ohio Steel Company, Youngstown, Ohio. If present plans are carried out it is probable that the new plant will be erected at Girard, a few miles from Youngstown; but as a definite decision has not been arrived at it cannot be stated as a certainty whether the plant will be erected at Girard or some other point.

At the annual meeting of the stockholders of the Pittsburgh Forge & Iron Company, held in that city last week, the officers were re-elected as follows: Calvin Wells, president; Frank E. Richardson, secretary; and Jas. Verner W. W. Speer, Murray A. Verner, B. H. Rubie and Ogden M. Edwards were elected a board of directors. As we have already stated, this firm, while represented in the recent conferences held between the Pittsburgh manufacturers and the Amalgamated Association, have declined to accept the scale as agreed upon in Pittsburgh recently, and as yet their plant has not resumed operations. Whether an attempt will be made to operate their works with non-union men cannot be stated at this time.

The rolling mill of the Slatington Rolling Mill, at Slatington, Lehigh County, Pa., has been started up.

The Midvale Steel Company of Nicetown, Pa., has begun the building of a large machine shop, 200 x 150 feet wide, for gun-finishing work.

The Columbia Iron Company of Columbia, Pa., have resumed work in their rolling mill.

Work has been resumed in the puddling department of the Paxton Rolling Mill at Harrisburg, Pa.

The Woodstock Iron Company, Anniston, Ala., have decided to levy an assessment of $4 a share and to issue $150,000 preferred stock.

A strike has occurred at the Citico Rolling Furnace, Chattanooga.

The Salem Wire Nail Company of Salem, Ohio, operating a wire nail factory at Findlay, Ohio, have closed down the latter plant for an indefinite period, owing to the failure of arranging a wage scale with the Amalgamated Association. The employees refused to accept the terms offered by the company, and as a result about 400 men have been thrown out of employment and will remain idle until a wage scale has been arranged.

Temple Furnace of the Temple Iron Company, at Temple, Pa., which has been idle for the past three months, went into blast last week.

Last week there were 4163 names on the payroll of the Pennsylvania Steel Company, at Steelton, Md., and $84,000 was distributed among the men for two weeks' pay.

The Cleveland Tin Plate Company of Cleveland, Ohio, have been granted a charter of incorporation, with a capital stock of $25,000.

The Lima Steel Works of Lima, Ohio, have been started.

A new steel process company has been organized at Nashville, Tenn., to use the direct process of F. M. Hill.

The Consolidated Barbed Wire Company of Lawrence, Kan., have decided to erect a wire drawing plant and a wire nail mill.

The New Albany Forge and Rolling Mill of New Albany, Ind., is to be put in operation, the new organization having been formed with B. Whitney Herr as president and Geo. B. Sackett as secretary and treasurer.

### Machinery.

Chamblin, DeLaney & Scott are erecting a large machine shop at Richmond, Va.

E. W. Broomall has sold his machine shop at West Chester, Pa, to H. Ridge.

The Williamsport Machine Company of Williamsport, Pa., have enlarged their plant.

An addition is to be made to the foundry of Thomas Noble, Philadelphia

The J. C. McNeil Company and the Summit City Boiler Works of Akron, Ohio, have consolidated.

Roberts & Holloway propose building a machine shop and brass foundry at Lansingburg, N. Y.

William H. Hennessy proposes building boiler works at Salem, Ohio.

The addition to the Holyoke Machine Company's works at Springfield, Mass., is nearly completed.

The Meriden Machine & Tool Co., Meriden, Conn., have occupied their new shops.

The Fremont Foundry and Machine Company of Fremont, Neb., have built an addition to their foundry.

The new wing of A. Wolff & Co.'s machine shop at Chambersburg, Pa., has been completed. It is to be used for corrugating and regrinding chilled rolls.

Marshall & Burdick have started a machine shop at Watertown, Pa.

The new foundry of C. C. Howill & Co. of Muskegon, Mich., is approaching completion.

The Southern Electrical Mfg. Company of New Orleans; the Brown & Sharpe Mfg. Co., Providence; the Ball Electric Company, N. Y. City; the J. H. & D. Lake Co. of Hornellsville, N. Y., and F. B. Fargo & Co., Lake Mills, Wis., are among parties who have recently added Bowsher's Balancing Ways to their machine shop equipments. The manufacturer is N. P. Bowsher of South Bend, Ind.

Robert Wetherill & Co. of Chester, Pa., are exceedingly full of business in their machine shops and foundry. A number of heavy contracts are in hand just now, including 27 large-sized Corliss engines for various parties. Among other work of an important character on which the company are at present engaged are the following items: For the new Paxton rolling mill of the McCormick Company, Harrisburg, Pa.; one tandem compound non-condensing Corliss engine of about 2500 horse-power; high-pressure cylinder, 30 x 60; low-pressure cylinder, 54 x 60, with fly-wheel 24 feet in diameter, weighing 145,000 pounds; a complete power plant for the new Columbia Lace Mills Company of Columbia, Pa. This company has been recently transplanted to this country from Scotland. They are making also a complete power plant, including a compound Corliss engine, with 24 x 60 feet high-pressure and 48 x 60 low-pressure cylinders for the Sanford Spinning Company of Fall River, Mass. Another complete power plant is also being built for the new tin-plate works of the N. & G. Taylor Company of Philadelphia; and one for driving the first electric cars on the trolley system in that city, which are to be placed in the Catherine and Bainbridge Street lines. This includes three 22 x 48 Corliss engines, with the necessary boilers, feed water plant, &c. A pair of Corliss, non-condensing compound engines, 28 x 48 high-pressure and 44 x 48 low-pressure cylinders, are also on the company's floors, to be shortly shipped to the Brush Electric Company, at Baltimore, Md., together with shafting and driving, heaters and other gear complete.

The B. F. Sturtevant Company of Boston, Mass., have the contract for blowers and exhaust fans for the new blacksmith shop and foundry at the Pennsylvania State College, in their new Engineering Building. The Sturtevant forges with special exhaust fan driven with electric motor are to be used in the blacksmith shop, and the blast for these forges is to be supplied by the Sturtevant electric pressure blower, and the blast for the cupola furnace will be supplied by another Sturtevant electric fan. They also recently shipped one of their electric fans to one of the largest silver mines in the world in Bolivia, South America. This fan has an electric motor directly attached, the motor being covered by a heavy steel plate case to keep out the dirt and prevent injury to the motor from surrounding objects. This fan is provided with an eye bolt at the top of the case and is to be suspended by a rope or cable in the mine shaft and the fan and motor will be raised or lowered to suit the circumstances, and the blower being driven by an electric current is specially adapted for this purpose.

Grant Anti-Friction Ball Company, incorporated, Fitchburg, Mass., succeed Grant Machine Tool Works, and will make a specialty of Anti-Friction steel balls for bicycles and other purposes. John J. Grant is president and general manager and R. H. Grant manager of sales department. Nelson Sawyer, an expert in the manufacture of steel balls, is superintendent. A new wing has been added to the plant, and the entire establishment will be devoted to their specialty.

The Betts Machine Company, of Wilmington, Del., have just finished a 14-inch boring and turning mill for the Pennsylvania Iron Works of Philadelphia. This machine will turn 14 feet 5 inches in diameter; will take work 10 feet high; it has two vertical spindles of 48-inch movement; there are 60 changes of speed of the table; the ratio of gearing is 1 to 2.2; the total weight of the machine is 120,000 pounds.

The Rodebaugh Mfg. Company, of Jackson, Mich., will establish a large plant at Bridgeport, Ala., for the manufacture of saw mill machinery.

The Pennsylvania Iron Works of Philadelphia are at present building quite an extension to their already large plant. This building will be 230 x 65 feet in width and will have a clear hight of 40 feet. It will be used exclusively for the heavier kind of work done by the company, and will, in consequence, be equipped with machinery intended for handling work of the most massive description. The list of some of the most important machines which will find permanent resting places in this building is as follows: A 25-ton electric crane built by the Morgan Engineering Company of Alliance, Ohio, which will have a traveling speed of 300 feet per minute. In one corner of the shop will be a pit lathe, in which two wheels 40 feet in diameter and 10-foot face can be turned at the same time. There will also be a 122-inch by 50-foot Bement, Miles & Co. planer, a 63-inch lathe and two horizontal boring mills, all by the same company; a 14-foot boring mill by the Betts Machine Company, and several Brown & Sharpe standard milling machines. It is expected to devote this extension almost exclusively to the manufacture of cable-driving appliances and the larger parts of refrigerating machines. We may state in addition that this company has been in actual operation only some five years, and, therefore, its extensive plant is equipped with machinery of the best design. The following dimensions of the main rooms will give a good idea of the extent of the whole establishment: The office is 100 x 40 feet on the ground; the foundry, 200 x 225; the present erecting shop, 180 x 70, and two machine shops, 225 x 90 and 225 x 80. An aim in laying out the first plans was to provide for the easy handling of heavy pieces of work, and we therefore find that the largest castings can be taken from the foundry and deposited in any department without any hand labor whatever. In addition to the above there is an ice machinery department measuring 190 x 80 feet, in which work peculiarly pertaining to the manufacture of these machines is carried on.

The Totten & Hogg Iron and Steel Foundry Company of Pittsburgh have just closed a contract with the Licking Rolling Mill Company of Covington, Ky., for a large train of rolls. This train is to be finished complete and the rolls turned ready for use.

William B. Pollock & Co., proprietors of the Mahoning Boiler Works, at Youngstown, Ohio, recently made a large consignment of tanks for a sugar refinery now being erected in South America, and they have also recently sent a tank car to Chihuahua, Mexico. This firm have recently made large additions to their plant which were made necessary by the steady growth of their business

The works of the Westinghouse Air Brake Company, at Wilmerding, Pa., which heretofore have run only four days a week, closing down Friday and Saturday, started up full time last week. About 3800 men are affected by the change.

A general meeting of the creditors of James P. Witherow will be held at the Monongahela House, Pittsburgh, on Tuesday, August 30 next, at 2 o'clock, p.m., to perfect the organization of the James P. Witherow Company, and the arrangements to take over the assets of James P. Witherow's estate by said company for the benefit of the creditors. A full meeting of creditors is desired either in person or by proxy.

The Knowles Steam Pump Works, at Warren, Mass., have resumed night work.

The Malleable Iron Company of Dayton, Ohio, will build a foundry.

A bonus of $10,000 to secure the location of the Fulton Iron Works of San Francisco has been subscribed by Oakland, Cal.

W. J. Wickham and Henry Kane have bought the Salamander Iron Works, at Dunkirk, N. Y.

The Emerson Mfg. Company have been incorporated at Lawrence, Mass., to manufacture machinery. T. New is president and E. Churchill treasurer.

T. J. Blake & Son are to erect a brass foundry at Hartford, Conn.

The Holt & Burwell Machine Company of Stafford Springs, Conn., have been incorporated.

The Canton Iron Foundry, at Canton, Ohio, is to be enlarged.

A. Freble and J. Behm have purchased the machinery business of Horace Perrin at Lake Crystal, Minn.

Ground has been broken for the large boiler shop of the Union Iron Works, at Erie, Pa. The completion of the shop will be followed by the erection of a large foundry.

The Ashland Foundry of Ashland, Wis., has stopped.

### Hardware.

Fitchburg File Works, Fitchburg, Mass., manufacturers of hand-cut files and rasps exclusively, are occupying a new building 80 x 35, which was built with special reference to the requirements of their business.

A. J. Phillips & Co., Fenton, Mich., advise us that their past season's trade in adjustable window screens, screen frames, screen doors and screens made to order was very satisfactory, an output of more than 500,000 screens being reported. Although orders have been filled with more promptness than formerly, owing to improved facilities, the manufacturers state that they were unable to fill orders for some 50,000 screens. For the coming season they are preparing to increase their output 25 per cent., and to this end have just put in a 150 horse-power Reynolds-Corliss engine made by E. P. Allis & Co. of Milwaukee, besides several new machines. A thorough overhauling and rearrangement of the plant is now in progress. The manufacturers expect to start up September 1 on snow shovels for the coming winter and screen goods for 1893.

Ludlow-Saylor Wire Company, St. Louis, Mo., advise us that they are pushed to keep abreast with the orders in their manufacturing department. They are at present engaged on a contract calling for 5000 square feet of channel work to cover 223 windows of the Hospital for the Chronic Insane at Hastings, Neb. In addition to this work they are also making a bank railing of handsome design for the Banco de Nurvo Leon at Monterey, Mexico, and two counter railings for the office of the State Treasurer of Louisiana, located at Baton Rouge, La.

The Fulton Tool & Mfg. Company, Canal Fulton, Ohio, advise us that they are now making pit cars, car wheels, axes, &c.; having lately started a foundry and machine shop in connection with their works. They are now employing 39 hands and expect to add ten more within a month. They state that their tools are all hand finished and guaranteed, and that their trade extends to all the mining States and Territories, and is daily increasing.

### Miscellaneous.

J. M. Brown is prepared to start up the manufacture of woven wire articles at Nashua, N. H.

The American Power Fence Machine Company have been organized at Frederick, Md., for the manufacture of fence-making machinery.

The Coe Brass Mfg. Company are again making additions to their already extensive plant at Thompsonville, Conn., and have placed the contract with the Berlin Iron Bridge Company of East Berlin, Conn., for three iron buildings, one 32 x 130 feet, another 50 x 50 feet, and the third 60 x 160 feet, these buildings being so arranged as to form a fire-proof connection between their several buildings, and thus give additional shop room, and at the same time in case of fire to prevent it from spreading.

Plans are being prepared for the new plant of the Turner & Seymour Mfg. Company, Torrington, Conn.

The James Mfg. Company, with a capital of $40,000, have been chartered at Weatherford, Texas, to manufacture stoves and kitchen utensils. W. S. James, J. F. Gaskell and others are incorporators.

A plant to manufacture mineral wool and mineral tiles from the slag of blast furnaces and limestone will be established at Buena Vista, Va. The Buena Vista Company are interested in the enterprise.

The Berlin Iron Bridge Company of East Berlin, Conn., will design and build the new buildings for the New Orleans & Carrollton Railroad Company at New Orleans, La. The power house is 83 feet in width by 130 feet long, with brick walls and an iron roof. The car shed will be built entirely of iron, 130 feet wide by 140 feet long.

The Tramway Railway Company of Pittsburgh, Pa., have been granted a charter of incorporation under the laws of West Virginia, with a capital stock of $1,000,000. The incorporators are Chas. H. Read, J. C. Read, H. C. Morrison, Harry Higginbotham and Chas. McKee, all of Pittsburgh.

The strike of the grinders and finishers at the works of Miller Bros., Meriden, Conn., is over.

# TRADE REPORT.

The situation in the Iron and Steel trade throughout the country is in a somewhat mixed condition. The influences growing out of the long suspension of work in the Western Iron and Steel mills have not yet spent their force, and it is difficult to gauge by their elimination how large the current demand really is. Those of the Eastern and Western works which have been running right along are still very busy, although they are catching up with their orders. A good many of the works which have been idle are starting on such old contracts as have not been canceled. Others enter the market with practically empty order books. In all this uncertainty, with every individual concern influenced by its own set of conditions, one fact comes out clearly, and that is that it will take a longer time than was generally expected to cover delayed requirements of consumers, and to fill up to a normal amount the depleted stocks of jobbers, mills and consumers.

Spot material is still scarce in nearly all parts of the country, and much better prices are obtained for it than for future delivery. Buyers are, however, not anticipating their wants, being pretty confident that October will bring a return to the old level of values, if, indeed, even lower prices do not rule.

There has been a little more activity in Ore in Cleveland, where Gogebic non-Bessemer Ore has sold down to $3.40.

In Pig Iron there are indications of an improvement in Philadelphia, but Chicago and Cincinnati continue to reflect the heavy pressure upon the market of large accumulated stocks. Pittsburgh reports a sale of 9000 tons of Bessemer Pig from the Mahoning Valley for delivery during the balance of the year at $13.75, the lowest on record. There has also been some movement in Bessemer Iron in eastern Pennsylvania.

Soft Steel Billets are still scarce for immediate delivery, and as yet little has been done for future delivery, the best price offered being $22.75, Pittsburgh. Negotiations for large quantities are progressing in the Chicago district. The low prices for Bessemer Pig now ruling do not hold out a very promising future for Soft Steel, when the works now started have supplied the orders for spot material.

Steel Rails remain lifeless. The estimate recently made that the mills had, on August 1, about 175,000 tons of orders on hand proves to have been correct, the total amount of orders thus far booked for delivery during the current year having been 985,000 tons up to August 1. Relatively the Eastern mills are poorly off.

In Finished Iron and Steel, notably in Plates and Structural Material, the market is very active, particularly in the West.

Old Material is enjoying a little more inquiry, as a result of the starting of the mills.

Copper is dull. Tin has remained steady, with quite a demand from the distributing trade. Lead is a little firmer, while Spelter is dull and inclined to be weak. Buyers of Tin Plate maintain a conservative attitude.

## Chicago.

*(By Telegraph.)*

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, August 24, 1892.

The heavy demand for finished products continues. Orders are being received here by jobbing houses from very remote localities, including points as far east as Ohio. One Iron house states that in the past week their inquiries have averaged 500 tons per day. The mills starting up are reported to be almost invariably full of work for at least 60 days. The long stoppage of the mills has enabled the mill warehouse to get cleaned up pretty thoroughly of odds and ends, so that they now have less stock at the works than for years. The railroads in this section are beginning to take decided steps toward the purchase of equipment. The St. Paul road has ordered ten locomotives from the Grant Locomotive Works and has also turned its Milwaukee shops on a large requisition for locomotives. The same road has begun to build 1500 freight cars in its shops. The Northwestern road is also taking active steps toward adding to its rolling stock. The Illinois Central placed orders for 700 cars last week and was obliged to divide the work among four shops in order to get anything like reasonable deliveries. The Detroit Car works combination is well filled for some time to come and efforts have been made this week to purchase needed raw material in this market. The spurt in shipbuilding along the lakes is also having an effect here. Angles and other material are being ordered by localites usually drawing all their supplies from works further East. Under these circumstances, the outlook seems exceedingly bright for a large volume of business in Finished Iron and Steel for at least the remainder of this year.

**Pig Iron.**—This is the only branch of trade which as yet shows no response to improving conditions of general business. At the same time; a very good volume of trade is reported quite generally by sellers. Some furnace companies represented here have more orders on their books than at any previous time at this season of the year. Influences previously reported as exerting an effect on the Coke Iron trade were decidedly perceptiole the past week. Low sales were made of both Southern and local Coke. Rather large inquiries are in the market for round lots of Southern, but competition for orders is very strong and prices are likely to reach as low a point as at any previous time when the deals are closed. Local Coke is weak on one brand particularly, while the others are maintaining prices quite well. The sales of local Iron have latterly been so large that it seems reasonable to suppose that in a short time the ranks will again be closed up and a firm front maintained. Lake Superior Charcoal is quiet, but firm. We have no reason thus far to change the views heretofore expressed with regard to the outlook for this class of Iron. Ohio Strong Softeners continue to be in very good demand in lots of two or three carloads at old prices. Quotations are as follows, cash, f.o.b. Chicago:

| | |
|---|---|
| Lake Superior Charcoal | $16.50 @ $17.00 |
| Local Coke Foundry, No. 1 | 14.50 @ 14.75 |
| Local Coke Foundry, No. 2 | 13.50 @ 14.00 |
| Local Coke Foundry, No. 3 | 13.25 @ 13.75 |
| Local Scotch | 15.00 @ 16.00 |
| Ohio Strong Softeners | 16.25 @ 17.00 |
| Southern Coke, No. 1 | 14.50 @ 15.00 |
| Southern Coke, No. 2 | 13.35 @ 13 85 |
| Southern Coke, No. 3 | 13 00 @ 13.25 |
| Southern, No. 1, Soft | 13.35 @ 13.85 |
| Southern, No. 2, Soft | 12 85 @ 13.10 |
| Southern Gray Forge | 12.50 @ 13.00 |
| Southern Mottled | 12.50 @ 12.75 |
| Tennessee Charcoal, No. 1 | 17.50 @ 18.00 |
| Alabama Car Wheel | 21.00 @ 22.00 |
| Coke Bessemer | 15.50 @ 16.00 |
| Hocking Valley, No. 1 | 17.00 @ 17.50 |
| Jackson County Silvery | 17.00 @ 17.50 |

**Bar Iron.**—Transactions have been of an erratic character the past week, owing to the fact that so few mills are as yet in operation in the West. Jobbers' stocks in Chicago have been drawn upon by buyers in remote sections. Orders have been received here from Toledo. Large manufacturing establishment have also been obliged to have recourse to jobbers' stocks, failing to get material contracted for with mills. A mill so situated as to be able to promise quick delivery secured 2¢, Chicago, on an order for Straight Bars; at the same time 1.70¢ was quoted for later delivery and was regarded as reasonable by the buyer who but a short time since was paying 1.60¢ or even less. There is a great deal of business offering, and if the situation here is any indication of the general condition of trade in the country the mills will have all they can do for months after they get fairly into operation. The usual quotation by Mahoning Valley mills on orders for future delivery is 1.50¢, at mill, half extras, or 1.63¢, Chicago. Some of the mills, however, are so well sold up that they are chary about making quotations on any basis. Jobbers are still quoting 1.90¢ @ 2¢ from stock, but they say that in view of the heavy demand it is possible that they may shove quotations up another notch in a week or so. Soft Steel Bars are as irregular in prices as Bar Iron, depending entirely on the condition of the mills, and prices range from 1.75¢ to 1.85¢, Chicago, for mill shipments. Jobbers quote 2¢ @ 2.10¢, from stock.

**Structural Iron.**—A very active condition of trade is reported by all who are in a position to supply this class of material within a reasonable time. Prices vary according to the mill and necessity of the buyer. Round lots of Beams and Channels range from about 2.35¢ to 2.75¢, the higher price being paid by those who must have material quickly. The season is so far advanced that builders are not disposed to take chances on getting low prices by holding off. Angles have been sold here at 2.25¢ for mill shipment, while prices from stock are about 2.20¢ @ 2.25¢ on such sizes as are available. Tees are quoted at 2.50¢. Universal Plates command 2.25¢ from mill and are hard to get.

**Rails and Track Supplies.**—The condition of the Rail trade is unchanged. Small orders are coming in quite regularly and the local mills are well supplied with work for some time to come. Quotations continue unchanged at $31 @ $32.50, according to quantity. Splice Bars are selling in moderate lots at 1.70¢ @ 1 75¢ for Iron or Steel; Spikes, in carload lots, are now quoted at 2.10¢, and Track Bolts with Hexagon Nuts, 2.60¢ @ 2.65¢.

**Merchant Steel.**—An excellent trade is in progress among the different Steel houses. Large sales are comparatively rare now, as heavy consumers are pretty well supplied, but the small trade are purchasing very liberally, and the result is a good movement from stock for all kinds of cheap Steels, as well as the higher grades. Quotations on Machinery, Open Hearth Spring and Tire Steel are unchanged at 2¢ @ 2.20¢, Chicago, in carload lots from mill; Tool Steel, 6¢ @ 8¢ and upward, according to quality.

**Billets and Rods.**—Considerable business is pending in Billets which will close this week. Pittsburgh is competing vigorously for intermediate territory for business now in sight. Manufacturers continue to quote $24.50. Wire Rods are selling in a small way at $34.50. Several Wire mills now inactive will be in operation shortly, and will then require a large daily supply to cover their requirements. On business of this character the local manufacturers

are as yet not naming prices, preferring that the future shall take care of itself.

**Sheets.**—A big demand is reported for Black Sheets, but buyers are not disposed to pay prices asked at present, thinking that they may be able to get orders in somewhere at prices at which they were able to make contracts earlier in the season. The manufacturers regard the situation with indifference, as the mills are now well supplied with work for delivery up to late in the fall, and believe they command the situation. No. 27 Common is still held at 2.95¢, Chicago, for carload lots or over, for anything like a reasonable delivery. Jobbers have had an unusually good demand for Black Sheets thus far and have held prices squarely up to their published rates of 3.20¢ for No. 27. Galvanized Iron is also in active demand and stocks here are badly broken, with dealers buying from each other in order to supply their customers. Under the circumstances, prices ought to be very firm, but for some reason they have eased off slightly, and 70 and 7½ % discount is not an unusual quotation for mill shipments of Juniata. Jobbers quote 67½ % @ 70 % for the same quality from stock.

**Plates, Tubes, &c.**—The market is very strong. A number of sales are reported of lots ranging from carloads up to 800 tons. The demand here is confined mainly to Tank and Flange Steel and heavy Sheets, as the boiler makers' strike is interfering with the local sales of high-grade material. Joseph T Ryerson & Son have issued a circular withdrawing all quotations on Iron and Steel, and stating that they will only quote prices on actual inquiries They say that the demand is now greater than the supply, owing to the closing of the Western Iron and Steel Works for so long a period. They had anticipated the shut down by a large stock, but that it now has to be replenished, and they find deliveries unsatisfactory and prices higher. The circular is confirmed by facts reported by other members of the trade. The advance on Tank Steel is from $6 to $8 per ton on the prices prevailing in June. Mill orders are now quoted at 2.15¢ to 2.40¢, Chicago, for Tank Steel, and 2.60¢ @ 3¢ on Flange, while Nos. 10 to 14 common Iron Sheets are quoted at 3.30¢ @ 3.50¢. An advance of $\frac{1}{10}$¢ @ $\frac{3}{10}$¢ from store is asked on these prices, according to the character of the order.

**Old Rails and Wheels.**—A demand is springing up for Old Iron Rails. They seem to be quite scarce and with a tendency to advance. Dealers continue to quote $18, but it is probable that buyers may be obliged to pay more than this price if they are in urgent need of stock. Old Steel Rails, long lengths, are in a little better demand than they have been and bring $13, while short pieces for melting are extremely dull and command but little over $11. Old Car Wheels are still neglected at nominal quotations, which range from $15 to $15.25.

**Scrap.**—Very little movement is reported in this class of Old Material. Limited sales for delivery in September are noted, but generally speaking the market is very dull. Quotations are unchanged, as follows: No. 1 Railroad, $16 @ $16.50; No. 1 Forge, $15 @ $15.50; No. 1 Mill, $11; Pipes and Tubes, $10; Horseshoes, $15.50; Sheet Iron, &c., $7; Cast Borings, $5.75; Wrought Turnings, $8; Axle Turnings, $9.50 @ $10; Machinery Cast, $11.50 @ $12; Stove Plate, $9; Malleable Cast, $10; Car Axles, $18.50 @ $19; Fish Plates, $17.25; Mixed Steel, gross ton, $10.50 @ $11; Coil Steel, $15; Leaf, $16.50, and Tires, $15.

**Metals.**—The Metal market here is unchanged from prices reported last week.

## Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., August 23, 1892.

The market is not easy to follow in times like these, as reports from the trade are somewhat contradictory. There are points, however, in which all are agreed, the most important of which is that there is a better demand. Prices are not uniformly better, but on the whole there is an encouraging degree of firmness; but a good deal depends on the kind of order that may be offered, both as to quantity and time for delivery. Some mills are starting up that have been virtually out of the market for several weeks, and some furnaces are asked to quote on larger lots and at longer dates than have been asked for almost time out of mind. Consequently, as one prominent member of the trade expressed it, "we are all at sea in regard to prices, and have to feel our way into the market." That is just about the idea, but out of it all it is not hard to see that things are very much better. The question usually taken into consideration now is not "shall we shade a trifle on this order?" so much as "shall we accept all the order or only a portion of it, and shall we ask more money, or let it go at last week's figures?" This is clearly a pleasant change from almost anything during the past six months, and if indications are not misleading there is certainly a probability of an unusually good business during the remainder of the year. Of course there is still the same large capacity for production, and while that may prevent any important advance in prices, there is reason to believe that with the increased consumption the exhaustion of stocks, and the more confident feeling based on these facts, there should be some improvement, especially in Pig Metal, Finished Material having already scored handsomely. But as we said before, the trade are groping their way into the market, and it may take some weeks yet before prices reach a point at which sellers will feel that they are in line with their competitors. At present some of them are not sure whether they are too low or too high, and for the same reason buyers are very unwilling to close a contract, unless they, too, are are perfectly sure they are not paying more than regular market prices. It will take time to settle these matters, but meanwhile there is an urgent call for quick deliveries.

**Pig Iron.**—There is less change in this department than in any other which this article usually takes into consideration. Prices are unchanged, but the general situation shows clear signs of improvement. There is more disposition to buy, and as usual in such cases less urgency to sell. Holders feel that they ought to get more money, and while they are not confident enough to demand it they would rather sell a 500 than a 1000 ton lot. Buyers, on the other hand, are doubling up their orders whenever they can manage it, so that the entire position is drifting around toward improvement, and ultimately, perhaps, toward better prices. "One swallow does not make a summer," however, and it will require heavy and continuous buying before any pronounced movement is made toward higher prices. Stocks are large, and although favorite and standard brands are comparatively scarce, there is a vast amount of Iron to be absorbed before stocks get down to their normal condition. Nevertheless, at the low figures recently quoted, there are more buyers than sellers, so that the increased confidence which holders are manifesting appears to be amply warranted. Meanwhile sales have been at about the following prices for seaboard delivery, or its equivalent, and from 25¢ to 40¢ less for Southern Irons at Harrisburg, Baltimore or intermediate points:

| | | | |
|---|---|---|---|
| American Scotch, No. 1x | $17.00 | @ | $17.50 |
| American Scotch, No. 2x | 16 00 | @ | 16.50 |
| Standard Penna. (Lake Ore), No. 1x | 15.00 | @ | 15.50 |
| Standard Penna. (Lake Ore), No. 2x | 14.00 | @ | 14.50 |
| Standard Penna. (Lake Ore), No. 2 plain | 13.25 | @ | 13.50 |
| Medium Quality, No. 1x | 14 25 | @ | 14.50 |
| Medium Quality, No. 2x | 13.25 | @ | 13.75 |
| Standard Virginia, No. 1x | 14.25 | @ | 14.50 |
| Standard Virginia, No. 2x | 13.75 | @ | 14.25 |
| Medium Va. and Southern, No. 1x | 14.00 | @ | 14.25 |
| Medium Va. and Southern, No. 2x | 13.00 | @ | 13.25 |
| Standard Penna. and Virginia Forge | 13.00 | @ | 13.25 |
| Ordinary Forge | 12.50 | @ | 12.75 |
| Hot-Blast Charcoal | 18.50 | @ | 21.00 |
| Cold-Blast Charcoal | 24.00 | @ | 26.00 |

**Bessemer and Low Phosphorus Pig.**—There is only a small demand and prices are somewhat unsettled, but usually quoted at about $16 at furnace for Standard Bessemer and $17.25 for Low Phosphorous Price depends a good deal, however, on quantity, brand, delivery and the urgency to realize, so that general quotations are not always as close as could be desired. P.S.—Several good-sized lots were taken to-day, in one or two instances at a little less than $16 at furnace for Bessemer, and a little over $16.50 for second quality Low Phosphorous. Latest reports, therefore, indicate a better demand, but without appreciable change in prices.

**Ferro-Manganese.**—Sales of 80 per cent. have been made at a figure very close to $57, but with reports of increasing scarcity in foreign markets. Holders are asking about $58, and in some cases are talking still higher figures.

**Steel Billets.**—Market very irregular, and actual values hard to determine. Some holders quote $25 or less for October, November and December shipments to Schuylkill Valley points, while those who can commence immediate deliveries talk $26 and upward. There is not much business doing, however, as those who are in a position to wait prefer doing so rather than pay the prices asked, while those who must have immediate deliveries have no alternative but to accede to sellers' terms, which vary from $26 @ $26.75, according to quantity, date, &c., but the lots taken are not large.

**Steel Rails.**—The same dead level of monotony prevails as for some time past—viz.: only small lots taken at unchanged prices. Mills are pretty well employed, however, the demand for Steel in other forms being quite active.

**Muck Bars.**—Scarce and in good demand at $25.25 @ $25.50, delivered to mills near by. Holders usually quote $25.75 @ $26, but the supply is small, hence there is but little active business to report.

**Bar Iron.**—There is a pretty fair demand for small and medium sized lots, but with so many mills about starting, consumers are inclined to defer placing orders unless on better terms than have been quoted within the past three or four weeks. Meanwhile work is not scarce, although there is a disposition to enter as much business ahead as can be secured at about the figures on current, say 1.70¢ @ 1.80¢ for city deliveries, and 1.60¢ @ 1.65¢ at interior points, prices according to quantity, quality, specification of sizes, &c.

**Skelp Iron.**—Not a great deal of business doing, although there is a fair inquiry, with some prospect that business will be done at about 1.60¢ @ 1.62½¢, delivered, for Grooved and 1.75¢ @ 1.80¢ for Sheared. although in some cases manufacturers ask more money. Recent sales, however, were at inside figures.

**Plates.**—Mills in this vicinity are very full of work, and are therefore quoting pretty firm prices on all new business.

The demand is of a well-distributed character, and, on the whole, amounts to a considerable business, although there are no large individual lots called for. But prospects are very encouraging, indicating a heavy demand for important interests in the near future, especially for ship and architectural work. There is some irregularity in prices on account of the different ideas entertained by sellers in regard to the fall trade, but as a rule the following quotations are well maintained for lots delivered at points near by, viz.:

| | Iron | Steel. |
|---|---|---|
| Tank Plates | 2.00 @ 2.05¢ | 2.00 @ 2.10¢ |
| Shell | | 2.25 @ 2.35¢ |
| Flange | 2.70 @ 2.90¢ | 2.50 @ 2.60¢ |
| Fire Box | 3.00 @ 4.00¢ | 2 70 @ 2.80¢ |
| Special qualities | | 3.25 @ 3.75¢ |

**Structural Material.**—Business in this department is quite active, and mills are in better shape than they have been for a long time past. There is quite an accumulation of work on hand, while the number and character of the inquiries coming in promise well for the balance of the year. Prices are firm, and for near-by deliveries are quoted about as follows: Say 2¢ @ 2.10¢, delivered, for Angles or Sheared Plates, 2.15¢ @ 2 20¢ for Universals and 2.30¢ @ 2.40¢ for Beams, Channels or Tees.

**Sheets.**—There is a fair demand and quite a good deal of inquiry for quotations on large lots, but there is no advance, although makers are looking in that direction. Meanwhile sales of best makes are made at prices about as follows:

Best Refined, Nos. 14 to 20.....2.40¢ @ 2.60¢
Best Refined, Nos. 21 to 24.....2.90¢ @ 3.00¢
Best Refined, Nos. 25 to 26.....3.10¢ @ 3.15¢
Best Refined, No. 27.....3.30¢ @ 3 40¢
Best Refined, No. 28.....3.40¢ @ 3 50¢
Common, ¼¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ¼¢ lower than are here named:

Best Soft Steel, Nos. 14 to 20 .....3¢ @ 3½¢
Best Soft Steel, Nos. 21 to 24.....3¼¢ @ 3⅝¢
Best Soft Steel, Nos. 25 to 26.....3½¢ @ 3¾¢
Best Soft Steel, Nos. 27 to 28.....3¾¢ @ 4¢
Best Bloom Sheets, ¼¢ extra over the above prices.
Best Bloom, Galvanized, discount.... @ 70 %
Common, discount..... @ 72½ %

**Old Material.**—There is more inquiry, and from present appearances it looks as though heavy purchases might be made at the low figures recently ruling. Meanwhile general quotations are about as follows: Old Iron Rails, $19 @ $20, delivered; Steel Rails, $15.50 @ $16.50, delivered; No. 1 Railroad Scrap, $17 @ $17.50, Philadelphia, or for deliveries at mills in the interior, $17 @ $18, according to distance and quality; $12 @ $12.50 for No. 2 Light; $12 @ $13 for best Machinery Scrap; $13 @ $14 for Wrought Turnings; $9 @ $9.50 for Cast Borings, and nominally $21 @ $22 for Old Fish Plates, and $14.50 @ $15 for Old Car Wheels.

**Wrought Iron Pipe.**—Business is very quiet, and at the moment nothing to show that there is likely to be any immediate improvement. Discounts nominally as follows:

| | |
|---|---|
| Butt, Black | 60 & 10 % |
| Butt, Galvanized | 52½ & 10 % |
| Lap, Black | 70 & 10 % |
| Lap, Galvanized | 60 & 10 % |
| Boiler Tubes, 3 inches and larger | 67½ % |
| Casing | 60 % |

## Cincinnati.

(*By Telegraph.*)

Office of *The Iron Age*, Fourth and Main Sts., CINCINNATI, August 24, 1892.

There has been some increase in the volume of business in Pig Iron during the week, but it was accomplished by sellers making concessions. The transactions were not large in any one instance, seldom reaching as high as 2000 tons, but prices are about 25¢ ₱ ton lower and the aggregate sales were about 20,000 tons, besides the small order trade, which has been of about the usual proportions and generally at pretty full previous prices. No. 2 Foundry and No. 1 Soft has sold at $9.25; Gray Forge $8.25 and Mottled Neutral Coke, $7.75, f.o.b. Birmingham, or on that basis. Most of the sales were for prompt shipment and spot cash, but buyers claim that they can buy at these rates for delivery during the year; but this does not appear to be an easy thing to do, for the stocks which are urgently offered are those on which it is desired to realize promptly. Notwithstanding the large decrease in the output of the furnaces, the situation shows no relief, and probably will not until stocks are materially reduced. There is large melting of Iron by small and medium consumers, but the large concerns, such as the Iron Pipe works in the South and West, have considerably curtailed their operations, and if the consumption is equal to the reduced production it is about all that could be reasonably expected. Quotations are as follows:

| | |
|---|---|
| *Foundry.* | |
| Southern Coke, No. 1 | $13 00 @ $13 25 |
| Southern Coke, No. 2 | 12.00 @ 12.25 |
| Southern Coke, No. 3 | 11.50 @ 11.75 |
| Ohio Soft Stone Coal, No. 1 | 16.00 @ 16.50 |
| Ohio Soft Stone Coal, No. 2 | 15.00 @ 15.50 |
| Mahoning and Shenango Valley | 16.60 @ 17.25 |
| Hanging Rock Charcoal, No. 1 | 19.75 @ 20.00 |
| Hanging Rock Charcoal, No. 2 | 19.00 @ 19.50 |
| Tennessee and Alabama Charcoal, No. 1 | 16.50 @ 17.00 |
| Tennessee and Alabama Charcoal, No. 2 | 15.50 @ 16.00 |
| *Forge.* | |
| Gray Forge | 11.00 @ 11.25 |
| Mottled Neutral Coke | 10.50 @ 10.75 |
| *Car Wheel and Malleable Irons.* | |
| Standard Southern Car Wheel | 18.75 @ 19.00 |
| Lake Superior Car Wheel and Malleable | 17.75 @ 18.00 |

## Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, August 23, 1892.

On Friday of last week the Conference Committee of the Amalgamated Association and the Mahoning and Shenango Valley Iron manufacturers, in session at Youngstown, agreed upon a wage scale which is similar in nearly all respects to the one agreed upon at Pittsburgh during the previous week and which was printed in *The Iron Age* of August 11. The only changes made were in Foot Note No. 4, under the boiling scale, and these will be found elsewhere in this issue. Since our last report a number of Steel scales have also been arranged and for the first time in nearly two months Pittsburgh is practically free from labor troubles. Of course the locked-out men at Homestead still claim that they will eventually win and compel the Carnegie Steel Company, Limited, to recognize the Amalgamated Association. However, their claims go for nothing, as the opinion is shared in by every one, and has been for some time, that the Amalgamated Association has received the worst single defeat in its history at Homestead. At this writing about 2000 men are at work, and the number is being increased just as fast as men that are satisfactory to the firm make application for positions. Now that the labor troubles in this city and elsewhere are practically over, a visible improvement in all branches of business is expected, and will no doubt be realized. It is not expected that the advance which took place on some lines of manufactures during the lengthy shut down of the mills will be maintained, but in all probability prices will recede to their former level just as soon as the resumption of operations has overcome any scarcity of materials caused by the shut down.

**Pig Iron.**— The resumption of operations in the Iron and Steel mills has not as yet caused any perceptible increase in the demand for Pig Iron and will not for some little time yet. It is well known that a number of heavy consumers of Iron had bought largely before the shut down, and during the time the mills were idle shipments were stopped. As the mills are again in operation this Iron will now be sent in, but until former contracts are cleaned up there will not be much increase in the demand for Pig Iron. The prospects for an improvement in the raw Iron trade are undoubtedly better now than at any time during this year. The principal reason for this lies in the fact that production has been curtailed very largely, and it is the general opinion that consumption is now equal to production, and if the furnaces now idle remain in that condition for 30 or 60 days longer consumption will exceed production. Again, it is pretty evident that some kinds of Iron have touched bottom, and when a turn in the market comes it is bound to be for the better. No one conversant with the cost of making Bessemer Iron will pretend to say that it can be made at $13.15 per ton and pay a profit. Sales, however, have been made of No. 1 Bessemer that only netted the furnace the above price. The price of standard Gray Forge in Pittsburgh to-day is $12.50, delivered to buyer's mill, and it is certain that price nets the furnace very little, if any, profit. For these reasons it is safe to assert that Bessemer and Gray Forge Iron have touched bottom, and that when a change in prices comes it will be in the nature of an advance. A transaction in Bessemer that occurred last week would go to show that this opinion is shared in by some of the largest consumers of Bessemer Iron. The transaction to which we refer was one involving about 9000 tons, and was bought by a concern that recently entered the market as producers of Bessemer Billets. The deliveries extend to the close of this year, and the price paid was equal to $13.75 at Pittsburgh or $13.15 at furnace in Mahoning Valley. This is the only transaction involving any considerable amount of which we are advised since our last report. A number of smaller sales, involving from 100 to 500 tons, at prices ranging from $13.80 to $14, took place. Some inquiries for Gray Forge are in the market, but no sales involving any considerable amounts have yet taken place. We quote the market as follows:

| | | |
|---|---|---|
| Neutral Gray Forge | $12.50 @ | cash |
| White and Mottled | 12.2 @ | $12.50, " |
| All-Ore Mill | 12.50 @ | 12.75, " |
| No. 1 Foundry | 14.25 @ | 14.50, " |
| No. 2 Foundry | 13.25 @ | 13.50, " |
| Bessemer Iron | 13.80 @ | 14.00, " |

We note a sale of 500 tons of Gray Forge at $12.50, delivered at buyer's mill, and also one of 400 tons of No. 1 Foundry at $14.35, delivered at buyer's mill.

**Ferromanganese.**—The only concern making Ferro in this city continues to quote $60 as the price, delivered at buyer's mill. The resumption of operations in the Steel mills will no doubt cause an improvement in the demand, which for some time past has been very small.

**Soft Steel Billets.**—Since our report of last week two important events have taken place. One of these was the taking of the Duquesne Steel Works of the Carnegie Steel Company, Limited, off Billets, and the other was the signing of the Steel scale by the Bellaire Nail Works of Bellaire, Ohio, and the Laughlin-Junction Steel Company of Mingo Junction, Ohio. The plant of the Duquesne Steel Works started up on Rails on Monday morning, the 22d inst. while the plant of the Bellaire Nail Works started up on Billets on the same date. The Laughlin-Junction Steel Company signed the Steel scale on Monday and will, no doubt, resume operations before the week is out. The only idle Bessemer plant in Pittsburgh at this time is that of Shoenberger & Co., and in all probability

this firm will arrange a scale of wages with their men during this week. It will be very similar, no doubt, to the scales adopted by Jones & Laughlins, Limited, Hainesworth Steel Company and the Laughlin Junction Steel Company, which are printed elsewhere in this issue. Now that all the Bessemer plants in this city are running, except Duquesne and Shoenberger, some contracts that were not filled at the time of the shut down will be taken care of, and then the mills will be ready for new business. Owing to this condition of affairs, buyers do not care to enter the market until these old contracts are filled, believing that they will be able to buy later on at lower prices. Billets for prompt delivery continue to command good prices, but, as stated above, very few are selling. We note a sale of 1500 tons for August and September delivery at $24, delivered at buyer's mill, and a sale of 1000 tons for balance of year delivery at $23.25, delivered at buyer's mill.

**Structural Material.**—Pittsburgh can now be correctly reported as again being in the market with Structural Shapes. Jones & Laughlins, Limited, have been running now for more than a week, while at the Homestead Steel Works shipments of Structural Shapes are made daily, and the tonnage turned out is increasing rapidly, notwithstanding the statements of the locked-out men to the contrary. The Columbia Iron & Steel Co., at Uniontown, Pa., have not as yet arranged a wages settlement with their employees, but the differences at issue are understood to be very nearly arranged, and a settlement may be reached this week. At the Upper Union Mills of the Carnegie Steel Company, Limited, in this city a great deal of Structural material for the Alley Elevated Railroad of Chicago is being turned out, and is pronounced by an inspector of that organization to be of the very best quality. We quote prices as follows: Beams and Channels, 2¢ @ 2.05¢ for desirable orders and 2.10¢ @ 2.15¢ for small lots; Universal Mill Plates, Steel, 1.80¢ @ 1.85¢; Universal Mill Plates, Iron, 1.80¢ @ 1.85¢; Angles 1.90¢ @ 2¢; Tees, 2.45¢; Refined Iron Bars, 1.70¢ @ 1.75¢; Steel Bridge Plates, 2.05¢ @ 2.15¢ and Z Bars, 2.15¢.

**Steel Plates.**—A very fair amount of business is being offered and Pittsburgh is in better shape to book business than at any time since the labor troubles commenced. An increase in the demand will no doubt be experienced, as it is known that a number of orders have been held back until the mills would get in operation. We quote prices as follows: Flange, 2.10¢ @ 2.20¢; Fire Box, 3.60¢ @ 3.75¢; Shell, 2¢ @ 2.15¢; Tank, 1.85¢ @ 1.95¢, f.o.b. Pittsburgh.

**Wire Rods.**—For the first time in some weeks all the mills in the Pittsburgh district are in full operation with the exception of the Beaver Falls Mills of the Carnegie Steel Company, Limited. A little labor trouble has cropped out at the Rod mill of the Pittsburgh Wire Company, but it will no doubt be fixed up this week. The resumption of operations in the Wire Nail mills will bring about an improvement in the demand for Rods, which has been of a limited character for some time past. Prices do not show any change, and we quote the market at $31.50 @ $32 for prompt shipment.

**Manufactured Iron.**—As we state elsewhere, a Conference Committee representing the Amalgamated Association met the Iron manufacturers of the Mahoning and Shenango valleys in Youngstown last week, at which a scale similar to the one adopted in Pittsburgh the week before was adopted. Some few slight changes were made in the foot notes, which, of course, will be made in the scale governing Pittsburgh as well. As a result of this quite a number of mills in the Mahoning and Shenango valleys have already resumed and others will start up just as soon as possible. A great many of the Iron workers were away from their homes with fishing parties or camping out, and could not be reached for several days. This will probably delay operations in some departments until these men have been communicated with and have arrived home in order to start work. During the latter part of this week a committee representing the Amalgamated Association, consisting of Wm. Weihe and M. M. Garland, and a committee representing the Pittsburgh manufacturers, consisting of Jas. M. Bailey, Geo. M. Laughlin and Jas. H. Nutt, representing the Mahoning and Shenango Valley Iron manufacturers, will meet in Pittsburgh and arrange the scale in accordance with the settlement made. Prices do not show much change, and we quote No. 1 Bars at 1.67½¢ @ 1.75¢, while Old Rail and Scrap Bars are obtainable at 1.50¢ @ 1.60¢; No. 24 Sheet we quote at 2.60¢, all 60 days, 2 % off for cash.

**Steel Rails.**—Last week was a banner week for production at the Edgar Thomson Steel Works, 8000 tons of Rails having been turned out. As we note elsewhere, the Duquesne Steel Works have been put on Rails, and it is expected to turn out about 5000 tons per week. A considerable improvement in demand is given by the firm as the reason for making the change, a number of railroads having placed orders for early delivery, in order to allow improvements to be made before winter weather commences. Prices remain at $30, f.o.b. at mill, for standard sections.

**Muck Bars.**—There is nothing new to report, but the resumption of the mills will, no doubt, do away speedily with the slight shortage in supply which has existed for some time. The Elba Iron Works, owned and operated by the Oil Well Supply Company of this city, have started up on Muck Iron, which is used by the firm in the manufacture of Pipe and Tubes. We quote the market at $24.50 @ $24.75 for Muck Bars of best grade, delivered at buyer's mill.

**Merchant Steel.**—A very satisfactory business for the month of August is reported by several makers and the outlook is said to be very good. One or two concerns in this city are still idle, not having succeeded in effecting a settlement of the wage scale with their employees.

**Wire and Cut Nails.**—There is nothing of interest to report in either Wire or Cut Nails. Wire Nail mills generally have resumed operations, and buyers will, no doubt, be able to place orders for early shipment in a short time and have them promptly filled. We understand that the Findlay mill of the Salem Wire Nail Company is closed down on account of a wage disagreement with the Amalgamated Association. We quote Wire Nails at $1.60 @ $1.65 in carload lots and $1.70 @ $1.75 in less quantities. Cut Nails do not show any change, and we quote at $1.50 for 30¢ averages, f.o.b. at mill.

**Skelp Iron.**—The resumption of operations in the mills has visibly increased the supply, and the scarcity of Skelp will soon have disappeared. The substitution of Bessemer Billets for Skelp Iron by some of the Pipe and Tube makers has caused a considerable falling off in the demand for Skelp during the past few months. We quote Narrow Grooved at 1.60¢ @ 1.65¢, and Sheared at 1.75¢ @ 1.80¢, 2 % off for cash.

**Wrought-Iron Pipe.**—Makers do not expect from this time forward to have any difficulty in securing a sufficient supply of Skelp Iron as promptly as desired. A fair amount of business is going, but it does not represent the capacity of the mills for production by a good deal. Makers still claim that the following discounts are closely observed in actual sales: Black, Butt, 60 and 10 %; Lap, 70 %; Galvanized, Butt, 52½ and 10 %; Lap, 60 %; Boiler Tubes, up to 2¼-inch inclusive, 60 %; 3 inches and larger, 65 %; Casing, 55 %; Inserted Joint Casing, 50 %.

**Old Rails.**—The resumption of operations in the Iron and Steel mills in this city and the valleys has already imparted a better tone to the Old Rail market, and prices are firmer, but not quotably higher. Prices are ruling about as follows: Old Steel Rails, $15.75 @ $16 for short pieces; long lengths, $15 @ $15.25; and miscellaneous lengths, $14.75 @ $15. Old Iron Rails we quote at $19 @ $19.50, delivered in Mahoning Valley. Dealers advise us that they look for a material improvement in the demand for both Old Iron and Steel Rails before long.

**Iron and Steel Scrap.**—The starting up of the Iron and Steel mills has not brought about any improvement in the demand for Scrap material, as many of the mills had considerable stock on hand before the shut down took place. When these stocks are worked up an improved demand is looked for, although it is not likely that Pittsburgh mills will use as much Scrap material in the future as formerly, on account of the substitution of Steel for Iron in so many of the mills and for so many purposes. Prices continue to rule about as follows: No. 1 Railroad Wrought Scrap, $14 @ $14.50 ℔ net ton; Cast Scrap, $11.50 @ $12 ℔ gross ton; Billet and Bloom Ends, $16 ℔ ton; Cast-Iron Borings, $6.50 @ $7 ℔ gross ton; Railroad Coil Springs, $17.50 @ $18 ℔ gross ton; Leaf Springs, $19.50 @ $20; Old Steel Axles, $18.50 @ $19 ℔ gross ton.

## St. Louis.

Office of *The Iron Age*,
Bank of Commerce Building,
ST. LOUIS, August 22, 1892

**Pig Iron.**—A report of the conditions governing this department during the past week is merely a repetition of the several preceding reports, as there is practically no change. The demand is perhaps lighter than it has been, but prices remain unchanged. It is difficult to see anything in the situation to warrant the assumption that prices will improve, as all the conditions are favorable to still lower prices. The stocks of unsold Iron continue to accumulate, and this, together with the decreased demand, has resulted in a very unsatisfactory market. Furnacemen are discouraged at the outlook, and consumers are likely to be able to purchase their supplies at prices that are even lower than those quoted to-day. For ordinary quantities we quote as follows for cash, f.o.b cars St. Louis:

| | |
|---|---|
| Southern Coke, No. 1 Foundry, | $13 50 @ $13 75 |
| Southern Coke, No. 2 Foundry, | 12 50 @ 12.75 |
| Southern Coke, No. 3 Foundry, | 12.00 @ 12.25 |
| Gray Forge | 11.50 @ 11.75 |
| Southern Charcoal, No. 1 Foundry | 15.00 @ 15.50 |
| Southern Charcoal, No. 2 Foundry | 14.50 @ 15.00 |
| Missouri Charcoal, No. 1 Foundry | 14.25 @ 14.50 |
| Missouri Charcoal, No. 2 Foundry | 13.75 @ 14.25 |
| Ohio Softeners | 16.25 @ 16.75 |

**Bar Iron.**—Business is keeping up fairly well, and mills have no reason to complain for want of orders. Stocks in jobbers' hands are somewhat broken, but it is only a question of a short time when they will be in good shape. Consumers, however, have no trouble in getting orders filled promptly at the following prices: From mill, 1.65¢ @ 1.70¢, half rates, f.o.b. cars East St. Louis. Jobbers quote 1.80¢ @ 1.85¢ from store, according to quantity.

**Barb Wire.**—The demand for Barb Wire continues to fall off, and prices are not as firm as heretofore. A few weeks since indications pointed to a lively fall trade, which may yet result, but if it does it will come more in the nature of a surprise rather than an anticipated event. Mills quote as follows: Painted, $2.25; Galvanzed, $2.70; less than carloads 10¢ ℔ cwt. additional.

**Wire Nails.**—The demand for Wire Nails continues to be active, and prices are well maintained. Mills are holding firmly to present prices, and it is doubtful if they could be shaded even for a desirable order. Mills quote $1.85 for carload quantities, which is bottom, and if the present strong demand continues a higher price will shortly be in order.

*(By Telegraph.)*

**Pig Lead.**—The market has been extremely quiet during the past week, although the dullness has not as yet resulted in creating a lower range of prices. Unless the demand improves shortly it is hardly possible that the prices quoted to-day can be maintained. Consumers bid 3.90¢, while sellers ask from 3.92½¢ to 3.93¢.

**Spelter.**—The remarks with reference to Pig Lead are also applicable to Spelter. The market is in a comatose condition, and consumers do not seem disposed to touch the market at this time. The market to day is 4.50¢ @ 4 55¢. The first named figure is probably what sales could be closed at.

## Cleveland.

CLEVELAND, OHIO, August 22, 1892.

**Iron Ore.**—There were a number of sales of both Bessemer and non-Bessemer Ores during the past week and several important negotiations are likely to be closed before September 1. The market is in a very much better condition than for several months, and many inquiries are being received from Eastern furnacemen as well as from those in the valleys. Prices continue about 30¢ ℔ ton below the quotations for the same Ores in 1891. By persistent efforts the Ore shippers have again reduced the rate for bringing Ore from Escanaba to lower lake ports to 75¢, while the Ashland rate has dropped to $1 and the Marquette rate to 90¢. These figures are certainly in favor of the buyers, and it is believed that they will be taken advantage of by the furnacemen. Receipts are dropping off a bit, only 65,000 tons having been unloaded on the Cleveland docks during the past week, against 91,000 tons for the preceding seven days and 100,000 tons for the corresponding week in 1891. There is, of course, little call for Ore from the furnaces, and only 30,000 tons were sent forward last week, as compared with 45,000 tons for the same week one year ago. Despite the temporary decline in lake shipments the receipts of new Ore at Lake Erie ports to date are far in excess of those of any preceding year. Some Red Hematite Bessemers have been sold since our last report at about $4.25, Cleveland delivery, and some non-Bessemer from the Gogebic and Menominee districts at $3.40 @ $3.65 ℔ ton. Estimates of the season's output vary from 7,750,000 to 9,000,000 tons, with indications that an average between the two might not be far from correct. The receipts of new Ore at Ashtabula, Fairport and other lower lake ports have been so far in excess of those of former years that only moderate shipments are needed to keep the receipts for the season up to the highest previous mark.

**Pig Iron.**—Although prices are about as close to the minimum mark as they seem likely to get this year, the volume of business continues small. There have been a few sales during the week just closed, but if they have amounted to anything more than the supplying of immediate wants dealers have not heard of it. Consumers confine themselves closely to the "immediate-necessity" plan of making purchases, and buy sparingly at that. During the past week there have been some few inquiries for No. 2 Foundry and for Soft Silvery Irons, but no sales of any significance are recorded. Gray Forge Irons seem hardly able to keep their position in the race, and are off a few points. Nominal quotations are as follows:

| | |
|---|---|
| Nos. 1 to 6 Lake Superior Charcoal | $16.50 @ $17.00 |
| Nos. 1, 2 and 3 Bessemer, per ton. | 14.25 @ 14.50 |
| No. 1 Strong Foundry, per ton.. | 14.75 @ 15 25 |
| No. 2 Strong Foundry, per ton.. | 13.75 @ 14.25 |
| No. 1 American Scotch, per ton. | ..... @ 14 60 |
| No. 2 American Scotch, per ton . | ..... @ 13.85 |
| No. 1 Soft Silvery, per ton..... | 15.50 @ 16.00 |
| Mahoning and Shenango Valley Neutral Mill Irons, per ton.... | 13 25 @ 13.75 |
| Mahoning and Shenango Valley Red Short Mills, per ton..... | 13.50 @ 14.00 |

**Nails.**—The market is fairly firm, but not very active. Steel Wire Nails are still quoted at $1.75 in stock and Cut Nails at $1 65. Stocks seem to be rather low. It is fortunate for makers that nearly all the orders now being received are for small amounts.

**Old Rails.**—A small quantity of Old Americans are reported to have been sold during the past week at $18.75, delivered. The market is almost devoid of life and prices are by no means firm.

**Scrap.**—Now that some of the mills have resumed operations a better demand is looked for, although the present situation scarcely warrants the hope. No. 1 Railroad Wrought is quoted at $14 @ $14.25, Cast Scrap at $12 @ $12.25, and Cast Iron Borings at $7 @ $7.50.

**Manufactured Iron.**—Sheets are somewhat scarce and in fair demand. Common Bar Iron, at 1.68¢ @ 1.70¢, is fairly firm and in some demand.

## New York.

Office of *The Iron Age*, 96-102 Reade street, NEW YORK, August 24, 1892.

**Pig Iron.**—Makers of standard brands report that shipments continue heavy and incline to a policy of keeping sales for future delivery down. Sellers of Southern Irons find the market dull, with very little business doing. We quote Northern brands at $15 @ $15.50 for No. 1; $14 @ $14.50 for No. 2; $13 @ $13.50 for Gray Forge, tidewater. Southern Iron, same delivery, $14.25 @ $15 for No. 1; $13.25 @ $14 for No. 2 and No. 1 Soft; $12.75 @ $13.50 for No. 2 Soft; $12.25 @ $13 for Gray Forge.

**Ferromanganese.** — Some importers have pretty well sold up for early delivery. The market is dull, with Ferromanganese nominally $57.50 @ $58.

**Billets and Rods.**—There is some inquiry for Special Billets, but on the whole the market is dull at $26, tidewater. A small amount of business is doing in foreign Billets at $30.50 @ $31, ex ship. The foreign market has been as low as 80/. Antwerp, 81/6 @ 82/ now being asked. Swedish Rods may be quoted $54.50 @ $55.

**Steel Rails.**—The announcement that the Duquesne mill has been started on Rails is not regarded as possessing any special significance. The market continues exceedingly dull, there being very little new business in sight for the Eastern mills. The price continues nominally $30 at Eastern mill.

**Manufactured Iron and Steel.**—The mills are still very busy with old work, but are getting no new business to speak of outside of their own territory. During the week under review no large contracts have been placed, but there is a good deal of work in sight which will come out as soon as buyers become convinced that values have settled down. We quote: Beams, 2.35¢ @ 2.75¢ for small lots and 2.20¢ @ 2.50¢ for round lots, according to sizes; Angles, 1.95¢ @ 2¢; Sheared Plates, 1.9¢ @ 2.10¢; Tees, 2.30¢ @ 2.75¢; Channels, 2.25¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢. Steel Plates are 1.95¢ @ 2¢ for Tank; 2.20¢ @ 2.25¢ for Shell; 2.50¢ @ 2.65¢ for Flange; 2.6¢ @ 2.75¢ for Marine, and 3¢ @ 3.25¢ for Fire Box, on dock; Refined Bars are 1.8¢ @ 1.9¢, on dock; Common, 1.6¢ @ 1.65¢. Scrap Axles are quotable at 1.95¢ @ 2.10¢, delivered. Steel Axles, 1.95¢ @ 2.1¢, and Links and Pins, 2¢ @ 2.20¢; Steel Hoops, 1.90¢ @ 2¢, delivered; Cotton Ties, 85¢ ℔ bundle, at mill.

**Merchant Steel.**—We quote Machinery, 1.80¢ @ 1.85¢; Tire, 1.85¢ @ 2¢; Toe Calk, 2.20¢ @ 2.30¢, and Sleigh Shoe, 1.75¢ @ 1.80¢, delivered.

**Track Material.**—We quote Spikes, 1.90¢ @ 2¢; Fish Plates, 1.60¢ @ 1.65¢; Track Bolts, square nuts, 2.50¢ @ 2.60¢, and hexagon nuts, 2.70¢ @ 2.80¢, delivered.

## Metal Market.

**Copper.**—No sign of change in the character or volume of demand for Ingot has been visible in this market during the past week. Home consumers adhere to the extremely conservative policy that seems to have become popular of late, and export purchases do not figure with sufficient prominence to act as an offset to home trade inaction. Meanwhile leading producers offer reservedly, and, while doubtless not blind to the force of existing conditions, make more or less outward exhibition of firmness and confidence. At 11¼¢ considerable quantities of Lake Superior product could doubtless be placed, but offerings from certain quarters at 11⅛¢ are almost invariably passing, and small lots within reach at 11.60¢ @ 11.65¢ move out very slowly. Electrolytic is nominally 11¢, but a little concession on lots of good size would doubtless be made. Common casting brands are offered by the single cask at 10.70¢; in single carload lots at 10.60¢, and for larger quantities 10½¢ would doubtless be accepted.

**Pig Tin.**—The speculative turnover in this market during the past week is estimated at about 250 tons, chiefly for early delivery, but, with that amount of dealings, prices have not gone beyond the limits within which operations of the preceding week were conducted. In other words, the market has been a remarkably steady one, although not free from the influence of manipulations by leading foreign operators and their local cohorts. As a redeeming feature it is worthy of record that more Tin has been taken for regular distributive trade by local and out of town jobbers, and the movement into the channels of consumption is represented as having been very fair also, the presumption from which is that the metal is considered by many as being a reasonably safe purchase under 20½¢, cash, for near future delivery. The speculative purchases during the week were chiefly at 20.35¢ @ 20.45¢ for August and 20.50¢ @ 20.55¢ for September delivery. On ordinary jobbing quantities, ex-store, 20⅝¢ @ 20¾¢ have figured as the average.

**Pig Lead.** — Surface appearances of greater firmness have developed, but sentiment rather than business seems to be back of the change. In any event the transactions make a very indifferent exhibit, and expectations of more urgent consumptive wants during the next 60 days are apparently the possibility upon which

holders pin their faith in better things ahead. Some little business was done at 4.02½¢ @ 4 05¢. Subsequently offers of the latter price were declined, and in remote instances bids of 4.07½¢ for single carloads met the same fate. At this writing 4.10¢ would appear to be sellers' idea of value.

**Spelter.**—Several carloads of Western have been placed in the East at 4 65¢ @ 4 70¢. Offerings at the last-named price are still free, and bids of over 4.60¢ are still the exception for deliveries prior to October. The demand is slow and hesitant, the offering free, though not particularly urgent, and, upon the whole, the market still presents a soft appearance, although not displaying the degree of weakness that has been prophesied in some quarters.

**Antimony.**—Prices have moved still further in buyers' favor and the market remains weak, with little, if anything, more than a routine business passing. Current quotations are 10⅝¢ @ 10¾¢ for Hallett's, 11¼¢ @ 11½¢ for L. X. and 12½¢ @ 12¾¢ for Cookson's.

**Tin Plate.**—There has been no improvement in the demand from any quarter or for any variety of Plates. Bargains in spot lots attracted some little attention, but quite as good inducements in large lines for future delivery failed to do so, and it is plain that buyers are still partial to extremely conservative policy. Cokes are lower on the spot than for future shipment. Ternes, on the other hand, are cheapest by 10¢ @ 20¢ per box for forward delivery. We quote as follows for full weights: Coke Tins—Penlan grade, IC, 14 x 20, $5.15; J. B. grade, do., $5.35; Bessemer do., $5.20 @ $5 25; light weights, 100 lb, 10¢ less; 95 lb, 20¢ less; 90-lb, 30¢ less than full weight; Siemens Steel, $5.35. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.60 @ $5.65; Siemens Steel, IC basis, $5.75; IX basis, $6.80. IC Charcoals—Melyn grade, ½ X, $6.40; for each additional X add $1.50; Allaway grade, $5.70; Grange grade, $5.80; for each additional X add $1.20. Charcoal Ternes—Worcester, 14 x 20, $5.70; do., 20 x 28, $11.40; M. F., 14 x 20, scarce; do., 20 x 28, $16; Dean, 14 x 20, $5.45; do., 20 x 28, $10.80; D. R. D. grade, 14 x 20, $5.25; do., 20 x 28, $10.50; Mansel, 14 x 20, $5.30; do., 20 x 28, $10.45; Alyn, 14 x 20, $5.40; do., 20 x 28, $10.70; Dyffryn, 14 x 20, $5.65; do., 20 x 28, $11.10. Wasters—S. T. P. grade, 14 x 20, $5.10; do., 20 x 28, $10; Abercarne grade, 14 x 20, $5; do., 20 x 28, $9.75.

## Financial.

The commercial situation is not distinctly unfavorable, yet it cannot be denied that the tendency to lawlessness witnessed in some quarters, the declining value of silver and simultaneous exports of gold—the latter despite the near approach of the season when exports should furnish commercial bills—are adverse conditions. Neither is the relative amount of exports and imports altogether satisfactory. On the other hand, it is a subject for congratulation that our markets, whether for securities or commodities, are not seriously disturbed. The transportation of merchandise has been briefly interrupted in some directions—for example, the westward movement of coal and intended shipments from New York have been deferred—but the determined action of the authorities conveys a wholesome assurance. It is a notable fact that the combined movement of grain and merchandise east from Chicago was expected to be the largest ever handled in any corresponding week. An important decision was rendered by the United States Court, Judge McCormick, sitting at Dallas, Texas, granting an injunction against the Railroad Commissioners of Texas, preventing them from enforcing the unreasonable rates or from bringing actions of forfeiture under the State laws. The decision is against the Railroad Commission on all points.

Respecting the forthcoming monetary conference in Europe the London *Economist* predicts as follows: "So far as the rehabilitation of silver is concerned, that is foredoomed to failure. But very considerable expectations are being built upon it in the United States, and when these expectations are falsified, as they will be, the apprehensions that are now being excited in the States by the outflow of gold from the country will become intensified. . . . Exactly how matters will move it is, of course, impossible to predicate, but this much at any rate is clear—that the failure of the conference will discredit silver more than ever, and cause gold to be more sought after, and that is the cardinal fact which those who have to consider the probable future of the great money markets should keep in view. In the end we believe silver will rather benefit than suffer from the cessation of compulsory purchases by the United States Treasury." Secretary Foster betrays not the slightest apprehension of future trouble, nor will anything be done by him to prevent shipments of gold. The recovery of silver was transient. In London, 18th inst., the quotation fell back to 37⅞ pence, the lowest price ever recorded there, and in New York fine silver sold at 82½¢ ₱ ounce.

On the Stock Exchange railway shares declined under the influence of the switchmen's strike. Crop reports were not quite so favorable. The failure of the Indian and Chinese Bank, though attributed to the shrinkage of silver, was not considered important. The selling of New England was attributed to the bear traders, who depressed it on the theory that Mr. Bostwick's estate must hold a large amount of the stock. On Monday there was good buying of Atchison, Rock Island and other grangers on reports of increased earnings; also of a car famine and grain blockade. News from Buffalo was to the effect that the Lake Shore and all the other roads were moving freight freely, that many of the striking switchmen were returning to work and that it was improbable that the railroad firemen would join in the strike. Then came news of a decision in favor of the Texas railroads, which started Texas Pacific and Missouri Pacific and rebuying of Reading to cover short contracts.

United States bonds closed as follows:

| | |
|---|---|
| U. S. 4½s, 1891, extended | 100 |
| U. S. 4s, 1907, registered | 115½ |
| U. S. 4s, 1907, coupon | 115½ |
| U. S. currency 6s | 107 |

Money both on time and call is in full supply, but rates have a firmer tendency. Exports of specie for the week were $2,252,000, and since January about $67,500,000, against $85,400,000 during the same time in 1891. Imports of merchandise at New York for the week were $11,765,000, which is $1,630,000 below those of the previous week. The ease in the money market is the result of the appearance of cotton bills, which are now being pressed on the market. In the West all signs point to more active money in September.

The merchandise markets were unsettled. Wheat was depressed by weak cable reports and large interior receipts. There was little demand either from the United Kingdom or the Continent. A Detroit circular says: "With an unprecedented amount of old wheat still unsold, and a fair crop of new, we now find ourselves with nearly as large stocks on hand as at the corresponding date last year, while reports indicate a probable diminution of 30 to 50 % in the foreign demand. Farmers are free sellers and prices have already dropped to a low point."

Tho French crop, according to the latest cable, is "nearly up to the decennial average." Corn is firm and slightly advanced. Sugar is strong. Cotton is a few points higher, but trading light. Among dry goods jobbers there is a fair trade, the South buying better than last year.

The July returns of foreign commerce are suggestive. Compared with the same month last year exports show a decline of $4,313.663, while the imports increased $4,331 145, making the excess of imports $8.644,808 greater than in July, 1891. In spite of the unfavorable showing for the last month the total of the foreign commerce since January 1 shows a balance of trade amounting to $85,461,111 in favor of this country, an increase of $27,000,000 on the balance for the same period of last year.

## British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, August 24, 1892.

Quite a large business has been done in Scotch Iron Warrants, about 1500 tons changing hands on Monday alone, and price moved up to 42/4. Covering of "short" accounts was conspicuous as a factor, but the announcement of a reduction to 399,000 tons in stocks in Connal's stores was not without effect. Cleveland warrants advanced to 40/3, although traded in to a very moderate extent. Only 16,000 tons of Cleveland Pig remain in store. Hematite warrants sympathized with the remainder of the list and realized 50/, although trading has been on a rather small scale.

Pig Tin sold down to as low as £93 and moved back to £94. The movement in prices is attributed chiefly to the fluctuations in silver and some increase of outside speculative interest in forwards.

Copper has undergone very little change. The unfavorable statistical position, together with the condition of the silver market, seems to have checked speculative interest, and weak advices from the Continent have also had more or less unfavorable effect. Business with consumers has, however, been somewhat larger. Sales of furnace material during the past fortnight involve 1000 tons Montana Matte, at 9/.

Tin Plate market has remained quiet. Rather more inquiry from Russia is reported, but the American demand continues very slow, and disappointment in that connection has an unfavorable bearing upon the trade.

**Scotch Pig Iron.**—Demand for makers' Iron has been rather more active, and prices are firmer throughout:

| | | | |
|---|---|---|---|
| No. 1 Coltness, | f.o.b. Glasgow | | 53/6 |
| No. 1 Summerlee, | " | " | 53/ |
| No. 1 Gartsherrie, | " | " | 52/ |
| No. 1 Langloan, | " | " | 53/ |
| No. 1 Carnbroe, | " | " | 44/6 |
| No. 1 Shotts | " at Leith | | 52/6 |
| No. 1 Glengarnock, | " Ardrossan | | 50/ |
| No. 1 Dalmellington, | " | " | 48/ |
| No. 1 Eglinton, | " | " | 47/6 |

Steamer freights, Glasgow to New York, 1/; Liverpool to New York, 7/6.

**Cleveland Pig.**—There has been merely a fair business, but, owing to the advance in warrants makers are firm at 40/6 for No. 3 Middlesborough, f.o.b.

**Bessemer Pig.**—The demand has been slow and prices are merely steady at 50/ for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

**Ferromanganese.**—A moderate business passing and prices nominal. English 80 % quoted at £11. 10/, f.o.b. shipping port.

**Steel Rails.**—The market is very quiet and prices are still in the buyers' favor. Heavy sections quoted at £4. 3/9, f.o.b. shipping port.

**Steel Billets.**—No change in character of business or in makers' prices. Bessemer, 2¼ x 2¼ inches, quoted at £4. 5/, f.o.b. shipping point.

**Steel Blooms.**—The movement is slow and values remain without change. Makers quote £4 for 7 x 7, f.o.b. shipping point.

**Steel Slabs.**—Dull market and former prices asked. Bessemer quoted at £4. 5/, f.o.b. at shipping point.

**Old Iron Rails.**—There has been rather more interest, but buyers and sellers are apart. Tees quoted at £2. 15/ @ £2. 17/6 and Double Heads at £2. 17/6 @ £3, f.o.b.

**Scrap Iron.**—Concessions on price have led to a freer movement. Heavy Wrought Iron quoted at £2. 5/ @ £2. 7/6, f.o.b.

**Crop Ends.**—The movement is slow, and sellers name former prices. Bessemer quoted at £2. 12/6 @ £2. 15/, f.o.b.

**Manufactured Iron.**—Demand is without change, and the sales making are chiefly at old prices. We quote, f.o.b. Liverpool:

| | £ | s. | d. | | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| Staff. Ordinary Marked Bars | 8 | 10 | 0 | @ | .. | .. | .. |
| " Common " ..... | 6 | 5 | 0 | @ | 6 | 7 | 6 |
| Staff. Bl'k Sheet, singles.... | 7 | 5 | 0 | @ | ..... | | |
| Welsh Bars (f.o.b. Wales).... | 5 | 7 | 6 | @ | ..... | | |

**Tin Plate.**—The market remains quiet and easy. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade .....14/ @ 14/6
IC Bessemer Steel, Coke finish.. . . .12/3 @ 12/6
IC Siemens " " " ... .... .12/6 @ 12/9
IC Coke, B. V. grade 14 x 20..... @ 12/3
Charcoal Terne, Dean grade.... .....12/ @ 12/3

**Pig Tin.**—Market quiet at the close and rather soft. Straits quoted at £93. 10/ for spot, and £93. 10/ for three months' futures.

**Copper.**—Latest dealings at slightly lower prices. Merchant Bars quoted at £44, spot, and £44. 10/, three months' futures. Best selected, £48. 10/.

**Lead.**—The market has been quiet, but steady at £10. 5/ for Soft Spanish.

**Spelter.**—Demand continues moderate and prices are still easy at £20. 17/6 for ordinary Silesian.

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Announcement is made that the H. C. Frick Coke Company of Pittsburgh, the largest manufacturers of coke in the Connellsville region, will very soon thoroughly test the plan of drawing coke by machinery. For some months past engineers have been at work in the office of this concern at Scottdale, maturing plans for a coke drawer, and it is probable the experiment will be made at the Valley Coke Works, which are under the management of James Lynch. The machinery to be used in the experiment will be from 8 to 12 feet long, and made of cast iron. A narrow-gauge track will be built along the yard, about 3 feet from the coke oven fronts. Along this track the patent coke drawer will be run and two men will be required to operate it. The coke will be watered by hand, as is the practice at present, and two scrapers similar to the ordinary short and long scrapers in use will be swung from the machine on a crane. These two scrapers will be manipulated by the men with the machine, and the coke will be hooked down and scraped from the oven in much the same manner as by hand. Running from the iron coke drawer to the car on the track will be a long sheet iron scoop, and the coke will be drawn directly from the oven into the car. This scoop, if it proves to work satisfactorily, will be the means of doing away with the wheelbarrow and steep platforms over the cars. The outcome of this experiment will be watched with considerable interest, as if it turns out to be successful it will considerably lessen the cost of manufacturing coke.

## The American Tin Plate Company.

C. Seymour Dutton of Wm. Tod & Co., Youngstown, Ohio, and Fred. Harris of the Falcon Iron & Nail Company of Niles, Ohio, recently made a visit to and inspected the plant of the American Tin Plate Company at Elwood, Ind. In an interview with a representative of the Youngstown *Telegram* of Youngstown, Ohio, Mr. Dutton gives the following interesting description of this new plant:

These works consists of five brick buildings arranged parallel to each other. The first in order of manufacture contains the hot rolling mill of eight pairs of rolls driven by a 36 x 48 Porter-Hamilton engine, and the necessary heating furnaces and shears. The next building contains four pairs of cold rolls driven by a 28 x 42 Porter-Hamilton engine, the boilers, pickling machine and annealing furnaces. The third building has ten tinning stacks and a packing room. Only four of them on bright tin and one on terne or roofing plate. The production varies a few boxes, but averages 200 boxes per day, or 40 boxes per set.

Before the rolling mill was fully in operation some black plate was imported to commence with. We examined the imported plate and compared it with the plate they are now making. Mr. Harris, who should certainly be considered a judge of sheet iron, said their sheets were quite equal in quality to the imported. As to the quality of the finished plate, they state that their orders are far in advance of their capacity, which is about all a manufacturer can ask for in that direction.

## A Remarkable Achievement.

On August 8, the breaking of the small rod connecting the governor mechanism of the large Corliss engine at the works of the Pennsylvania Bolt & Nut Company at Lebanon, Pa., left the engine without any means of controlling it. The valves remained wide open and the engine taking a full head of steam was instantly made to run at a dangerous speed. Before the engineer could get the steam shut off the tremendous velocity of the main-line shafting to which the engine was belted and the vibration from the main belt caused the displacement of several posts in the engine room to which the shafting was attached. As soon as the posts moved out of place the line gave way, and about 200 feet of heavy shafting, hangers and 5-foot driving pulleys were torn from their fastenings and whirled through the air, landing in a tangled and broken mass on the floor. Fortunately, none of the employees were injured. The engine was but slightly damaged, but the shafting and belting were totally wrecked. W. B. Middleton, the superintendent, proceeded immediately to Philadelphia to the works of the George V. Cresson Company, manufacturers of power-transmitting machinery, and, after stating his requirements, was assured that the entire list of material required, comprising very heavy shafting, couplings, hangers, and a large list of pulleys from 5 to 2 feet in diameter, would be shipped by 5 o'clock of the same afternoon. This was carried out. The actual time from the giving of the order until it was loaded on the cars was just four hours. This is a remarkable instance of promptitude, reflecting great credit upon the resources and capability of the concern above mentioned.

We learn that the George V. Cresson Company are about to make considerable additions to their plant on Alleghany avenue, Philadelphia. They have given out a contract for the erection of a large new machine shop, 500 feet long by 108 feet wide, which will be devoted to the manufacture of large pulleys and shafting. The building will be fire-proof, with brick walls and iron roof and beams. A traveling crane of 40 tons capacity will traverse its entire length. The necessary power will be transmitted from the engine by means of ropes led through an underground conduit a distance of 150 feet. A smaller building, 24 x 50 feet, connecting the new shop with the present plant, will also be erected, and it is expected that the new buildings will be finished and ready for use by December 1.

## Changes in the Iron Scale.

At the meeting held in Youngstown last week between Conference Committees of the Amalgamated Association and the Mahoning and Shenango Valley iron manufacturers, several slight changes were made in foot note No. 4 under the boiling scale, which was added when the scale was adopted in Pittsburgh the previous week. The paragraph alluded to as adopted at Pittsburgh reads as follows:

4. Wherever deviations from the Western Iron Scale signed for by any manufacturer and the Amalgamated Association are made, and evidence is produced to prove it, the Amalgamated Association agrees to make every effort to correct the same, providing the trains and furnaces are similar. But if the deviations continue to be tolerated by the Amalgamated Association all other mills shall receive the same. All manufacturers signing the scale hereby agree not to make any deviations from the scale agreed to.

At Youngstown it was changed slightly, and in the new iron scale as finally adopted will read as given below:

4 Whenever deviations from the Western Iron Scale signed for by any manufacturer and the Amalgamated Association are made, and evidence is produced to prove it, the Amalgamated Association and manufacturers agree to make every effort to correct the same, providing the trains and furnaces are similar; but if the deviations continue to be tolerated by the Amalgamated Association all other mills shall receive the same. All manufacturers and workmen governed by this scale hereby agree not to make any deviation from the scale agreed to.

In connection with the new scale, as printed in *The Iron Age* of August 11, a slight error crept in. In the plate and tank mill scale we stated that heating would remain at 80 cents per ton. This is an error, the 10 per cent. reduction agreed upon affecting heating as well as the other departments, thus reducing heating from 80 cents to 72 cents per ton. The new iron scales will be made up for distribution among the manufacturers for their signatures in a few days.

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Chas. J. Smith, one of the directors of the Otis Steel Company of Cleveland, has arrived from Europe.

# HARDWARE.

## Condition of Trade.

IT IS PLEASANT to report a continuance of the favorable conditions which have of late characterized the market. The demand continues good and on a safe, conservative basis. The policy of both manufacturers and dealers not to accumulate goods beyond the requirements of their current business has resulted in moderate stocks in almost all departments. That the trade are in good financial position is shown by the satisfactory way in which collections are being made.

### Chicago.

(*By Telegraph.*)

Shelf Hardware is now in heavier demand than last week. Builders' Hardware especially is moving more freely, indicating great activity in building circles throughout the Northwest. Seasonable goods are in very active demand, such as Stove Boards, Stove-Pipe Elbows, Coal Hods, Sheet Iron, &c. Some houses report about as large a trade as they can well handle. They have not yet begun night work, but will soon do so if the present rate of increase keeps up. So far nothing has transpired in any way to interfere with the glowing prospects entertained during the last month of a very heavy fall trade. Jobbers in Heavy Hardware report an exceedingly satisfactory condition of business, with demand running throughout the entire line. They have done an especially heavy business the past week in Iron and Steel. Orders have been received here from Toledo and other Eastern points for Bar Iron from stock. Large consumers of Bar Iron who do not ordinarily purchase from the jobbers have been obliged the past week to send in large orders, on account of the failure to secure shipments from mills with which they have contracts. Wheels show a tendency to advance.

### St. Louis.

(*By Telegraph.*)

Continued activity is reported by jobbers of Hardware, and it is asserted on all sides that a large fall trade is already assured. The extremely pleasant weather prevailing in this locality during the past three weeks has helped matters considerably. Builders' Hardware is in urgent demand, and Wire and Cut Nails are also freely ordered. Barb Wire continues to drop, and sales are light, with little prospect of any early improvement. Guns, Ammunition, &c., are ordered in good quantities, and prices are well maintained in nearly all lines. Merchant Iron is not so active as it was, and jobbers have had an opportunity to replenish their stocks. Taking everything into consideration, the Hardware trade has little reason to complain, either as regards prices or volume of trade.

## Notes on Prices.

**Cut Nails.**—There has been no change in the condition of this market, except a growing firmness on the part of producers, who are very firm in their views, and are unwilling to quote except for immediate acceptance. We quote at Western mills for round lots on a 35-cent average, $1.40 to $1.42½, in the Atlantic States, $1.55 for Steel Nails in carload lots at mill on a 25 to 35 cent average, with equalization of freight. Iron Nails are quoted at 3 cents a keg less. In 1000-keg lots 5 cents a keg is deducted for either Iron or Steel. The following are the prices of carload lots of Steel Cut Nails on dock, New York:

| | Base. |
|---|---|
| 25 to 30-cent average, extra | $1.70 |
| 31 to 39 " " " | 1.65 |
| 40 to 49 " " " | 1.60 |
| 50 cents and up " " | 1.55 |

Iron Nails, 3 cents a keg less than Steel.
Lots of 1000 kegs, 5 cents a keg less than above prices.

Steel Nails from store in New York are held at $1.75, and Iron Nails at $1.72.

*Chicago, by Telegraph.*—Cut Steel Nails show no change from conditions reported last week. Manufacturers are in receipt of fair orders, and report prices steady at $1.62½, on 30-cent average. Jobbers are doing a very satisfactory business and maintaining prices at $1.75 for small lots from stock.

**Wire Nails.**—The demand is still active for Wire Nails. Prices are without change. We quote from mill $1.60 to $1.65 for liberal orders, and in exceptional cases $1.55 has been quoted. From store in New York small lots are quoted at $1.85 to $1.90.

*Chicago, by Telegraph.*—Wire Nail manufacturers report only a moderate inquiry with a fair volume of business. Prices are strong and unchanged at $1.70 to $1.75, Chicago, according to the character of the order. Buyers complain that these prices are too high, but send in their orders, showing that their stocks of Nails are running low. Jobbers are doing a very good business from stock at $1.85, the new price which was recently made.

**Barb Wire.**—The demand for Barb Wire continues good, and indications seem to show that manufacturers will have all they can do in this line. Prices remain firm, and it is only in exceptionally large contracts that quotations can be slightly shaded. We quote $2.60 to $2 65 as the extreme quotation from mill on Four Point Galvanized. New York prices are $3.10 for small lots and $3.00 by the carload.

*Chicago, by Telegraph.*—The condition of the trade in Barb Wire is shown under the heading of Joliet. Jobbers are quoting small lots from stock at $2.40 Painted and $2.90 Galvanized.

*Joliet.*—Trade has been rather light up to this time, but inquiries are on the increase along the line of Plain Wires and Fence Wires. Manufacturers anticipate liberal shipments as soon as the fall trade begins to come in. Barb Wire is selling at $2.25 for Painted and $2.70 for Galvanized in carload lots; Staples, Annealed, at $2 15 to $2.30, and Lime Coated at $2.20 to $2.25; base of Annealed Wires, $1.85 to $1.90 and 45 cents for Galvanized. The Eastern markets, through a more advantageous rate of transportation, have had the better of the trade over Chicago vicinities for the last two or three months.

**Cordage.**—The market on Manila and Sisal Rope continues weak and the demand very moderate. Quotations are being shaded, and, although no official change has been made in prices by the National Cordage Company, they seem to be ready to meet prices made by outsiders, and well-informed buyers are disposed to look for a decline.

**Sandpaper.**—Makers of Sand and Emery Paper seem to be shading their prices and quoting 5 per cent. better than has previously been the case.

**Wood Planes.**—The market is weak in this line, and former quotations are being shaded, which brings these goods to a point about as low as they have ever been sold.

**Wrought-Iron Pipe.**—While there has been no concerted action on the part of the manufacturers and no quotable change in prices, makers are becoming firmer in their views and some are holding their product at 5 per cent. higher figures than they have been in extreme quotations.

**Wheels.**—A meeting of representatives of most of the leading Vehicle Wheel manufacturers in the United States was held on the 18th inst. at Cincinnati. It is understood that advanced prices in these goods were agreed upon.

**Lindsay's Giant Cutting Nippers.**—Porter Bros. & Co., 78 Worth street, New York, agents for Lindsay's Giant Cutting Nippers, advise us of an advance in the price of these goods from 40 per cent. to 33⅓ per cent. discount.

**Glass.**—The scale of wages agreed upon for the coming year, which is a continuation of last year's wages with a few slight changes in the working rules, has given general satisfaction. During the past week a meeting of the Western Window Glass Manufacturers' Association was held at Columbus, Ohio, to decide upon the date for starting the factories. There are conflicting reports as to the date fixed upon at this meeting. The general impression is, however, that the probable date upon which a majority of the factories will resume operations will be September 24.

It is equally probable that some factories will start earlier in the month. It is hoped by the manufacturers that during the intervening month the increase in demand and the scarcity of Glass will give a firmer tone to the market, and that an advance in prices will be possible. The present price made by jobbers in the city is from 80 and 10 to 80 and 10 and 5 per cent. discount, according to the size and desirability of the order. There has been no especial effort on the part of jobbers to push business. There is no change in the Imported Glass market. Stocks are being received, but business continues quiet. The quoted discount of 80 and 5 per cent. appears to be well adhered to. Quotations are on the following basis: American Window Glass, 1000-box lots or more, 80, 10 and 5 per cent. discount; carloads, 80 and 10 per cent. discount; less than carloads, 80 and 5 per cent. discount; French Window Glass, 80 and 5 per cent. discount; American Plate is held at a discount of 50, 10 and 5 per cent., and imported Plate at a discount of 60 per cent.

## Export Notes.

M. P. GUERIN, manager of the Rio de Janeiro branch of Flint & Co., exporters, 140-142 Pearl street, New York, since its establishment two years ago, is now in this country and will devote the greater part of his stay here, extending over some weeks, to putting himself in touch with such enterprising manufacturers of Hardware, Machinery, Agricultural Implements, &c., as desire to take advantage of the differentials offered us by the Brazilian Government in the last treaty, amounting to 25 per cent. reduction beyond other nations in many goods, and admission free on all machinery for industrial purposes. This representative firm will gladly receive catalogues, prices, samples, suggestions and any information that will tend to increase trade in a promising field from manufacturers who desire to take advantage of favorable conditions to enlarge their market. Mr. Guerin was long connected with Thebaud Bros. of this city as buyer, and is thoroughly conversant with South American trade.

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Norton & Son, 90 Wall street, say the steamer James Watt, the first of their permanent line for River Platte ports, will sail September 10, as advertised, with a full cargo, and they expect to follow with another steamer about October 15. They call attention to the fact that case Oil, with which that market has been overstocked for three or four months, is again going forward, having made freight engagements recently for 15,000 and 20,000 cases for Montevideo and Buenos Ayres.

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John B. Woodward, export commission merchant, 130–132 Water street, reports the receipt of cable orders for miscellaneous goods, and mentions this as evidence that trade is improving and goods are wanted promptly. He ships largely of Hardware, Agricultural Implements, Oil, Lumber and other staples, and now has three steamers under charter loading yellow pine at Pensacola and other Southern ports for Uruguay and Argentine Republic. It is believed this house is the first to take advantage of the low rates to charter steamers for this purpose.

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It is stated by export merchants in this country that Cuban customs officers are ignoring the changes made in the tariff recently negotiated between this Government and Spain, and so far the only redress obtainable has been a protest against such summary action.

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Coombs, Crosby & Eddy Company refer to the bitter feeling which existed in Chili against the United States, engendered by the Itata affair, as rapidly dying out, and has almost ceased to be of any commercial importance. They have almost daily communication with T. R. Eddy of their company, now in the Argentine Republic developing a promising business.

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Bolivia, which formerly got the greater part of its supplies through the Pacific Coast ports of Arica and Mollendo, principally by mule train over the Andes, now gets a considerable portion by the railroad which the enterprise of the Argentines is continually pushing nearer that country.

## Shortage in Metal Straps.

WE HAVE HAD OCCASION heretofore to call the attention of the trade to shortages in weight, count or measure of certain lines of goods, and to suggest the advisability of precautions to guard against such irregularities. In this connection we desire to advise that purchasers of Metal Box Straps take the trouble of verifying the measurements of these goods, inasmuch as certain flagrant instances have recently come to our knowledge where the shortage has run from 10 to more than 20 per cent. Relating to this matter, the Cary Mfg. Company, 5, 7 and 9 Elm street, New York, who concede the accuracy of the measurements of most of their competitors, inform us that they intend to issue a circular in which they will call attention to such irregularities, which they refer to as being practiced by only one manufacturer and will give instances of the extent of the shortages. They also state, referring to the full length of their own Metal Strap, that they will make a present of the goods to any one who will prove a shortage of 1 per cent. in measure of any case or coil of their Strapping.

## Trade Notes.

JOHN C. KOCH, vice-president of the John Pritzloff Hardware Company, of Milwaukee, was nominated for the office of Lieutenant-Governor of Wisconsin on the 17th inst. by the Republicans. This is Mr. Koch's first appearance in the political field. In this case the office sought the man, and he was nominated by acclamation, showing the high esteem in which he is held by the people of his State.

THE UPSON & HART COMPANY, Unionville, Conn., have adopted a new trademark, "Columbian Silver Plate Company," for their new solid Columbia Silver, which is warranted not to tarnish. This Silver is referred to by the manufacturers as possessing the qualities of genuine Silver, and the durability of goods made from it is mentioned. The company are making this metal in Knives, Forks, Spoons and other flatware.

ANNOUNCEMENT IS MADE that John A. Emerick of J. A. Emerick & Co., manufacturers of Foundry Supplies and Equipment, Pbiladelphia, has disposed of his interest in that concern and retired from the business heretofore carried on by himself and Howard Evans. The business will be continued by J. W. Paxson & Co. and Howard Evans, who are empowered to collect and pay all unsettled accounts belonging to the firm of J. A. Emerick & Co. The consolidatton of these two houses will, it is hoped, yield better service in the delivery of Molding Sand and Foundry Supplies.

THE NEW CASTLE WIRE NAIL COMPANY, New Castle, Pa., are again in full operation, the difficulties between the company and their employees having been adjusted.

BUHL STAMPING COMPANY, Detroit, Mich., under date August 18, announce that at a meeting of the directors of the company on the 17th inst., the resignations of Walter S. Burn and Wm. H. Burn as officers were accepted, to take effect immediately, and accordingly these gentlemen are no longer connected with the corporation. It is also stated that duly authorized agents will soon call upon the trade, and in the meantime the company solicit mail orders for Tubular Lanterns, Bird Cages and Milk Can Stock.

AT A MEETING of the Winton Bicycle Company, Cleveland, Ohio, on August 16, the following officers were elected: F. L. Alcott, president; Z. Davis, vice-president; W. H. Boardman, treasurer and manager, and G. H. Brown, secretary.

JOSEPH F. MCCOY of Joseph F. McCoy Company of New York, who has been spending the past two months in Europe, arrived home Thursday, August 18, on the steamer Trave.

A LARGE SALE of Hardware, Edge Tools and house-furnishing goods is announced by Haydock & Bissell, 12 Murray street and 15 Park place, New York, among the Special Notices in this issue. This sale will take place on Thursday and Friday, September 1 and 2, when besides the above goods, an extensive assortment of Hammers, Washita Stone, Wire Nails, Shovels, Axe Handles, &c., will be disposed of.

## Price-Lists, Circulars, &c.

WESTCOTT CHUCK COMPANY, Oneida, N. Y.: Catálogo de Westcott, Mandriles. The above company issue an illustrated catalogue of their Little Giant Chucks, with Spanish text, for export trade. Complete descriptions accompany the illustrations.

CANANDAIGUA TINWARE COMPANY, Canandaigua, N. Y.: The Queen steamer Cook Book. Illustrations and description are given of the Queen Steamer, together with a number of recipes.

JOHN P. LOVELL ARMS COMPANY, 147 Washington street, Boston, agents for Keene Mfg. Company, Whelpley's Long Reach Skates. Their catalogue 1892-93 illustrates and describes various patterns of Long Reach Skates, together with Clamp and Strap Club Skates.

# The Rogers Screw-Making Process.

AFTER four years of controversy, Mr. Charles D. Rogers of Providence, for the American Screw Company, has obtained a patent for an improvement in the manufacture of wood screws. The application was filed in June, 1888, and the examiner in charge rejected one claim, and declined to consider the other claims, for the alleged reason that they "failed to point out any qualities that could legitimately be considered in connection with the patentability of an article of manufacture. The applicant insisted that the examiner should be directed to make a full examination to see whether or not he was entitled under the law to a patent, and in the event of a refusal it was contended that the reasons for its rejection should be given so that the applicant could decide whether or not to persist in his claim either with or without amendment, as it was obvious that he could not in any other way test by appeal to the court as a last resort the correctness of the examiner's adverse decision. There was a number of hearings, at which Mr. Rogers was represented by Chauncey Smith of Boston, Col. W. W. Swan, also of Boston, and Remington & Henthorn of Providence, and the result of the contest was, as stated, the issuing of a patent based on two claims.

### THE OLD METHOD.

Wood screws hitherto have been made by a series of operations, which may be specified as follows, omitting the drawing of the metal into wire and beginning with the operation which has specific reference to the making of a screw: 1. The cutting from wire of a piece required for a screw. 2. The swaging of a rough head upon one end of the piece cut off for a screw by upsetting the metal in a die by means of a machine known as a "header" or "heading machine" (the piece of metal is now called a "screw blank"). 3. The shaving of the entire head thus formed to perfect its form and give it the required size. 4. The cutting of a slot across the face of the head. 5. The reshaving of the head to remove the burr formed in cutting the slot. 6. The cutting away of the metal at the opposite end of the piece to reduce it to a point. 7. The formation of the thread by cutting a spiral groove around a portion of the body of the wire or "screw blank," so-called. The cutting tool is applied to the blank several times, making repeated cuttings to complete the thread. In these operations about 40 per cent. of the metal is cut away and becomes waste.

### THE ROGERS METHOD.

Charles D. Rogers of the American Screw Company devised a new way of making screws by a different series of operations by which a large saving of material is effected, a reduction in the cost of making secured, together with new characteristics and qualities in the screws themselves, which are the result of some of the operations performed and are made necessary by those operations.

As in the old process, screws are made by his new process from wire; but for screws of any specified size the wire is of a smaller diameter, the size having reference to the diameter of the threaded part of the screw; but experience has proved that the size of the head should bear within small limits of variation a certain relation to the diameter of the thread, and the use of smaller wire for screws of specified sizes than that which has been employed in the old process involves the upsetting of the metal to form the head to a greater extent than heretofore, and with an accuracy not before required both as to form and surface.

In the new way of making screws the shaving of the head and the cutting of the slot across it and the reshaving and the cutting away of the metal to form the thread are entirely dispensed with, and the consequent waste of material is entirely obviated. The severing from the wire of each piece required for a screw is effected conjointly with the pointing of the blank by an operation which involves but little waste and bears as much or more resemblance to forging or swaging as to cutting and is entirely different from the common method of pointing a blank by cutting away the metal as in a turning-lathe. At the same time the end of the wire is brought to a shape which facilitates the forging of the next head.

In the new way of making screws the following operations are performed: 1, the head of a screw, including the slot, is formed upon the end of a rod or coil of wire which is to be made into screws by swaging or forging; 2, such portion of the wire on which a head has been formed as is required for a screw is then simultaneously cut off and pointed to a form and in a manner which will permit a thread to be forged thereon to the point of the screw; 3, the thread is formed by rolling the body of the blank between dies, which force the metal to expand radially into grooves in the die, which give the form required for the thread.

The operation of swaging or forging the head, above referred to as a distinct operation, is, in fact, a complex operation of several steps or sub-operations similar in their nature, each differing from the steps that precede or follow it and requiring a specific device or instrument to effect its specific object, but contributing to the final result—the production of a screw head completely formed by forging or swaging.

### THE CHARACTERISTICS OF THE SCREW.

The screw presents a surface of forged or compressed metal at the parts which are subjected to the greatest strain, as at the junction of the head with the shank, in the slot or neck, in the under surface of the head and in the thread. It is well known that iron or steel articles having such a surface are stronger than articles of the same size and form and of the same material with a surface formed by cutting. Tests made by Mr. Rogers show that screws made by the new method with a forged or rolled surface in the parts above mentioned have greater tensile strength and greater strength to resist the torsional strain of a screw driver than screws of the same size made of larger wire and of the same material. The diameter of the threaded portion of the screw being greater than the diameter of the unthreaded portion and the thread being thinner, the required hold upon the wood can be secured with less danger of splitting it than with screws of the common form. The surface of the head which rests upon the wood and compresses it, and consequently the area of the compressed section of the wood itself, is larger than in the wood screws heretofore made by the common cutting operations, and thus the wood is better able to resist the compression of the screw. Other forms of heads can be forged by suitable dies, such as spherical or conical heads. The thin, raised thread, which enters the wood more readily than the common cut thread and engages with it more deeply, requires the strength due to the forged surface and the compression of the metal. The relatively small diameter of the wire employed to produce a forged thread by radial expansion of the metal involves the upsetting of the metal to a greater degree to produce a head of the required size and makes it important to secure the strength due to a forged surface of metal.

The difference in the form of screws made by the new process is found in the enlarged head and threaded portion of a screw relatively to the shank or unthreaded portion.

### FORGING THE THREAD.

The wire first passes through a series of straightening rolls, from which it goes between reciprocating feeding clamps that at the proper time grasp the wire and feed forward the length required for a screw. It then passes between a pair of clamping dies, which hold it firmly against the action of the heading hammers or dies, which forge the head of a screw.

From the clamps the wire passes into and through a die in which the head of a screw is to be formed, projecting through the die sufficiently to furnish the metal required for the head. In this position it is ready to receive the action of the hammers which upset the metal and force it to fill the cavity of the die and give it the form required, the form of the face of the head, including the slot, being given by the last hammer which acts upon it.

Fig. 1, 2 and 3 illustrate the action of each of three hammers which act in succession to produce the most common and familiar screw head. The first hammer does little more than shorten the portion of wire protruded through the die and enlarge its diameter, as represented in Fig. 1. The second hammer compresses the metal still more and expands it against the surface of the mouth of the die. This hammer also gives a temporary curved form to the face of the head to prepare it for the action of the third and last hammer. The action of the second hammer is illustrated in Fig. 2. In Fig. 3 the action of the final or finishing hammer is illustrated. The face of the hammer rests upon the face of the die and the cavity of the die is completely filled with the metal without overflow. A tongue on the face of the hammer to form the slot is represented by the dotted lines. The operation of forging the head of a screw is now complete. If the face of the hammer and the surface of the cavity of the die are smooth, the head of the screw will be sufficiently smooth for the practical use of screws. If a finer finish or surface on the face of the head is desired, it may be given by a suitable polishing or shaving tool without changing the character of the head or the process by which the screw is formed.

The head being formed, the wire is next fed forward the proper distance for the length of screw required. The forging of the head expands the metal in the cylindrical part of the solid heading die, and makes it important that the wire shall be started by a feeding device of great power, followed by the action of another device, which carries the wire forward the required length for a screw. The blank is then severed from the wire. In connection with the severing the operation is performed of pointing the blank to prepare it for the threading operation.

### SEVERING THE HEAD AND POINTING.

The operation of severing and pointing is effected by means of a pair of dies (one of which is represented by Fig. 5), which are forced against the wire and compress the metal and bring the end of the blank to a conical point, as represented in Fig. 4. At the same time the end of the wire from which the blank is severed is brought to a globular or rounded form, as represented in Figs. 6 and 7. This shape is of advantage in forging the next head. The dies which effect these results are shown by Fig. 5, as just stated.

The only waste of metal which attends this way of making screws occurs in the severing and pointing of the blanks, and is represented in Figs. 6 and 7.

FORGING THE THREAD.

The final operation is the forging or swaging of the thread. This is effected in another machine by two reciprocating dies, between which the screw is held stationary as to forward movement, but has an axial motion. The thread is formed by the reciprocation of the two dies, which are operated by powerful gearing. The prominent feature of this process is that the dies at the commencement of the operation are forced into the metal to the maximum depth required, and as the rolling progresses the metal between the ribs is more and more compressed and gradually expanded into the grooves of the dies until at the end of the operation it fills them and the thread is completed.

It will be seen that in this series of operations all parts of the metal which are changed in form are subjected to compression to effect that change, and that thereby a large reduction in waste of metal is effected and an increase of strength is gained, which, together with the improved form which results from the raising of the head, by forging, and the consequent change in the size of the head with reference to the wire from which it is formed, makes a screw said to be distinctly and substantially different from the screws heretofore made by shaving and cutting.

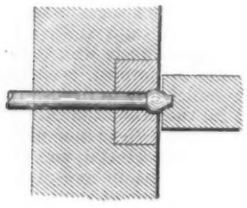

Fig. 1.

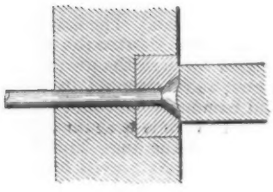

Fig. 2.

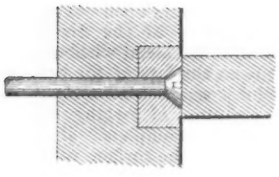

Fig. 3.

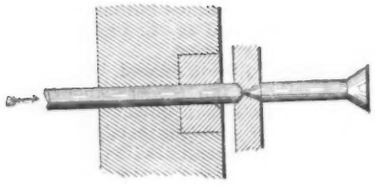

Fig. 4.

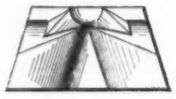

Fig. 5.

Fig. 6.

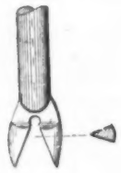

Fig. 7.

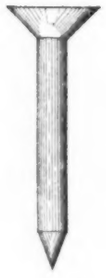

Fig. 8.

Fig. 9.

*The Rogers Screw-Making Method.*

Since application was made for the patent herein described, many improvements have been invented and patented by Mr. Rogers for American Screw Company in connection with the forged wood screw, notably the taper shank and the forged open slot, not illustrated in this article.

Respecting Mr. Rogers' invention of the die for producing screw threads, it is popularly supposed that the way is open to produce these successfully, through previous inventions covered by patents beginning more than 60 years ago. For many years what are called fine thread screws, those in use for metal and without points, have been produced in Connecticut. They were never able to produce threads for use in wood, for the reason that all dies prior to Rogers' in their action forced the metal of the blank longitudinally as well as radially. Rogers' main invention consisted in avoiding this longitudinal tendency by so constructing his die as to secure under its first working complete initial penetration. This feature of the die was very much discussed at the recent trial in London, and the expert, Sir Frederick Bramwell of the English contestants, whose authority is recognized, testified that the principle was new to him. Judge Romer in his decision said: "I see no ground in the evidence before me for believing that the defendant has not *bona fide* and independently constructed a machine of his own, which he had reason to consider original." This opinion was unanimously confirmed by the Court of Appeals.

The London suit was brought by the Nettlefolds, the owners of Harvey's English patent, upon the claim that the Rogers infringed Harvey, and it was shown during the trial, and admitted by Sir Frederick Bramwell, that Harvey knew nothing about the importance of initial penetration. The time had not arrived for that to be appreciated and, therefore, Harvey fell just short of complete success.

Another important feature of Rogers' die, patented subsequently, has reference to the swaging of the ribs to conform to the enlarging diameter of the screw as it is being formed. Forged wood screws cannot be made without the use of these two inventions, and the American Screw Company was the first to make a commercial success of the manufacture. The public in time will understand the reason for this, but thus far have been unable to appreciate the essential features of Rogers' inventions.

Rogers' inventions, with respect to enlarging the diameter of the body and head, forging the nick, &c., are not disputed. Harvey accomplished nothing beyond making an imperfect screw thread, and considered the enlargement of the diameter, which follows as a necessary consequence, an evil, because of his inability to make the head of a screw of proportional diameter.

We understand that the Rogers patents, which are worked in this country by the American Screw Company of Providence, R. I., are used in Germany by the well-known firm of Felten & Guilleaume, while Col. W. H. Reynolds has charge of the European patent negotiations.

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HAMBLIN & RUSSELL MFG. COMPANY, Worcester, Mass., issue a circular giving *fac simile* of a letter received from the headquarters of the National Republican League of the United States, 202 Fifth avenue, New York, in which it is stated that the League have adopted the Echo Red, White and Blue Campaign Cane, which the company are manufacturing. The use of the Cane by Republican clubs is also earnestly recommended.

## Exports.

PER SHIP LUCILLE, JULY 26, 1892, FOR MELBOURNE, AUSTRALIA.

*By Edward Miller & Co.*—102 packages Lamp Goods.
*By the Hanley Machine Tool Company.*—250 cases Lawn Mowers.
*By Arkell & Douglas.*—6 cases Bolts, 11 cases Axles, 2 cases Rivets, 2 cases Shovels, 1 case Cordage, 1 case Lead Pencils, 40 reels Barb Wire, 1 case Blocks, 1 case Wood Faucets, 15 cases Hoes, 3 cases Bolts, 5 cases Forks, 9 cases Tools, 12 cases Lampware, 33 cases Handles, 275 cases Axes, 31 packages Builders' Hardware, 23 packages Lawn Mowers, 18 packages Binder Parts, 55 cases Axes, 4 cases Agricultural Machinery.
*By W. & B. Douglas.*—4 packages Pumps.
*By Sargent & Co.*—8 cases Hardware.
*By Meriden Britannia Company.*—2 boxes Silverware.
*By Manhattan Brass Company.*—1 box Hardware.
*By Stanley Works.*—3 boxes Steel Hinges.
*By the Cleveland Axle Mfg. Company.*—6 cases Axles.
*By Hussey, Binns & Co.*—1 case Shovels.
*By the Withington & Cooley Mfg. Company.* 1 case Forks, 1 case Whipstocks.
*By Henry Disston & Sons.*—10 cases Hardware.
*By the Peck, Stow & Wilcox Company.*—11 cases Hardware.
*By Winchester Repeating Arms Company.*—73 cases Cartridges.
*By James McEwan Company.*—5 cases Forges and Drills.
*By Alfred Field & Co.*—2 cases Bolts, 2 cases Axles.
*By Meriden Britannia Company.*—5 packages Silver Ware.

*By Arkell & Douglas.*—144 packages Harvesting Machinery.
*By S. Hoffnung & Co.*—2 cases Strops.
*By A. S. Lascelles & Co.*—3 cases Nails.
*By Edward Miller & Co.*—20 packages Lamp Goods.
*By Meriden Britannia Company.*—23 packages Silver Ware.
*By R. H. Dana Company.*—14 cases Handles, 2 cases Bolts, 1 case Hardware, 1 case Drills, 7 packages Lawn Mowers.
*By E. B. Estes & Sons.*—200 boxes Carpet Tacks.
*By Meriden Britannia Company.*—2 packages Silver Ware.
*By Manhattan Brass Company.*—10 barrels Lamps.
*By Henry Disston & Sons.*—6 cases Hardware
*By R. W. Forbes & Son*—6 cases Shovels, 1 case Air Guns, 4 cases Fishing Rods, 1 case Snaths, 3 crates Handles, 4 cases Hardware.
*By Arkell & Douglas.*—1 case Nuts and Bolts, 7 cases Eyelets.

PER BARK ELENOR VERNON, AUGUST 1, 1892. FOR AUKLAND, NEW ZEALAND.

*By A. S. Lascelles & Co.*—1 case Shovels, 3 racks Churns, 2 boxes Hardware, 1 bundle Hardware.
*By S. Hoffnung & Co.*—2 cases Wringers, 1 case Strops, 1 case Scoops.
*By Henry W. Peabody & Co.*—4 cases Farming Implements, 1 case Hardware.
*By the F. B. Wheeler Company.*—2 cases Wringers, 1 crate Handles, 7 cases Hardware, 2 cases Rat Traps, 26 cases Axes.
*By Arkell & Douglas.*—3 packages Agricultural Implements, 3 cases Hardware, 1 case Axles, 1 case Springs, 11 cases Handles, 1 case Rakes.
*By Strong & Trowbridge.*—10 cases Cartridges, 1 case Empty Cartridge Shells, 5 crates and 3 cases Handles, 1 case Sprayers, 5 cases Hardware, 3 cases Wringers, 1 case Agricultural Implements, 1 case Molasses Gates, 1 case Braces, 1 case Axles, 36 cases Axes, 7 racks Churns, 5 cases Axes, 5 cases Whetstones, 3 cases Nails, 2 cases Choppers, 1 case Door Springs, 1 case Braces, 1 case Saw Sets, 1 cask Pumps, 1 case Hoes, 2 cases Hardware, 1 case Whips, 1 case Shovels, 5 cases Bolts, 5 cases Saws and Files, 1 case Pumps, 3 cases Axles, 1 package Clippers.

PER SHIP CITY OF PHILADELPHIA, AUGUST 2, 1892, FOR SYDNEY, N. S. W.

*By Atlas Tack Corporation.*—27 boxes Tacks, 6 boxes Nails.
*By R. E. Dietz Company.*—32 cases Lanterns.
*By the Fairbanks Company.*—12 boxes Scales.
*By B. F. Avery & Sons.*—6 boxes Plows and parts.
*By W. J. Kingsland.*—26 cases Lawn Mowers.
*By Cleveland Axle Mfg. Company.*—5 cases Axles.
*By A. S. Lascelles* —1 box Oil Stones, 1 case Shovels, 1 case Razor Strops, 12 cases Axes, 8 cases Cartridges, 20 cases Axes, 4 racks Churns, 3 packages Braces.
*By Meriden Britannia Company.*—13 packages Silverware.
*By Atlas Tack Company.*—3 boxes Tacks, 9 boxes Nails.
*By the F. B. Wheeler Company.*—1 case Hardware, 2 cases Hardware.

PER BARK W. R. HUTCHINGS, AUGUST 3, 1892, FOR PORT ELIZABETH, SOUTH AFRICA.

*By Sherman & Lyon.*—4 cases Hammers, 5 cases Locks, 6 cases Carpet Tacks, 1 case Bits.
*By the Coombs, Crosby & Eddy Company.*—1 case Hardware, 4 cases Handles.
*By Strong & Trowbridge.*—80 kegs Nails, 21 cases Handles.
*By Marseilles Mfg. Company.*—1 box Feed Grinders.
*By Norton & Son.*—7 boxes Agricultural Machinery.
*By W. H. Crossman & Bro.*—15 barrels Tool Steel, 652 cases Hardware, 327 cases Agricultural Implements and parts, 248 kegs Nails, 30 cases Handles, 6 packages Ladders, 250 reels Barb Wire, 10 cases Loaded Cartridges, 2 cases Hardware, 6 bundles Steel, 2 cases Agricultural Implements.

PER BRIG JOHN H. CRANDON, AUGUST 5, 1892, FOR CAPE TOWN, SOUTH AFRICA.

*By W. H. Crossman & Bro.*—4 cases Hardware, 40 kegs Nails.
*By Strong & Trowbridge.*—18 cases Hatchets and Axes.
*By W. H. Peabody & Co.*—4 crates Wire Mats.
*By Sherman & Lyon.*—3 cases Chalk, 1 case Hardware, 7 cases Meat Choppers, 1 case Peach Parers, 5 cases Hardware, 1 barrel Well Wheels, 1 case Hammers, 1 case Fruit Jars, 2 cases Stepladders, 1 case Thermometers, 1 case Binding Wire, 1 case Electric Bell Outfit, 3 cases Lawn Mowers, 1 case Spades, 1 case Hardware, 1 crate Wheelbarrows.
*By The Coombs, Crosby & Eddy Co.*—5 cases Tools, 2 packages Scales, 1 case Tools, 5 packages Lamps, 5 cases Axes, 2 packages Fly Trays, 1 case Ladders, 1 crate Handles, 10 cases Hardware, 9 crates Stoves, 2 cases Handles, 1 bundle Hay Forks.

## Paints and Colors.

***It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.***

Nothing has occurred to excite unusual interest in any branch of the market. Variations in prices of base materials are moderate—too narrow, in fact, to have any influence upon manufacturers' prices for their productions, and competition keeps temperate. Hence a fairly good tone all along the line, and sufficient business to cause a cheerful feeling. Most lines in house-painters' goods meet with somewhat better sale, and there is improvement also in specialties adapted for car-painting, but as yet the movement does not appear to exceed average proportions for this season of the year.

*White Lead.*—The condition of the market is unchanged. Corroders adhere to the old list prices and terms, and manifest no more concern than heretofore over the irregular rates at which the sales are made by jobbers. In the cheaper forms of pigment there is not more than the usual fluctuation in prices, and, as far at least as the better class of mixtures is concerned, the market would appear to be in very good shape. Business, generally speaking, is fully up to the average volume for this season of the year and showing gradual recovery.

*Red Lead, Litharge, &c.*—No change whatever in prices of domestic productions, and but slight variations in those of imported goods are referred to. The general market presents a steady appearance, with some little increase of business, but little or no movement of other than routine character.

*Zincs.*—New orders for the standard quality of American Oxide continue to run very fairly, and there is as much doing as usual at this season in the low grades. High-grade product, that competes more directly with foreign Zinc, is doing quite well, but there seems still to be about the average distribution of the imported articles. Prices throughout remain the same as quoted for some time past.

*Colors, &c.*—The old line of prices for the leading varieties of Dry and Oil Colors prevails, and, as a whole, the market retains very good tone, since competition is no sharper than usual and no "cutting" indulged in by handlers of goods upon which uniform prices are agreed to by the manufacturers. In grinders' stock the fluctuations are of ordinary character, and the market for the goods is moderately active. There has been more doing in some of the well-established brands of Metallic Paints, and business in various Ready-Mixed Paints is represented as showing improvement.

*Miscellaneous.*—Block Chalk is holding its own in price, there being no accumulation of supply here and no pressure to sell for future delivery. City brands of Whiting sell at about former prices and seem to be affected very little, if at all, by low quotations made by out of town manufacturers. Putty is in about the same position. No change is noticeable in the market for Clays of any description.

### Oils and Turpentine.

Improvement is noted in the movement of several lines of Oil, and the general market shows signs of recovery from the languid condition in which it has been during the preceding three or four weeks. It is noted also that where sales have increased the dealings were free from speculative influences. The two circumstances lead to the belief that the improvement rests on solid foundation and that the looked for good autumn season trade will be realized. Few changes in prices have taken place and the most of those were in the direction of a higher level, showing greater firmness along with better sales in most branches of the market.

*Linseed Oils.*—Local manufacturers report an increase in their sales of Raw Oil, and seem to experience no annoyance over such outside competition as they encounter at the present time. In the latter connection it may be remarked that the offering of outside brands in this quarter is comparatively moderate just now, and that a lower rate than 39¢, less 2 %, is the exception. Prospects are favorable for a good business during the next three months, and there seems to be an impression that, unless some new adverse influence arises, prices will move higher.

*Cotton-Seed Oil.*—The volume of business, while not particularly large, shows decided improvement over that of the preceding week. One block of 100 barrels Summer Yellow was taken by a home consumer, and double that quantity was disposed of in lots of 100 to 300 barrels, some of which were for export account. There is still a very fair demand and favorable prospect for further liberal sales. Business has been chiefly at about the prices that ruled last week, and the market closes quite firm.

*Lard Oil.*—The fluctuations in the price of the crude material have had no pronounced effect upon the market for prime Lard Oil. At present prices the Oil is selling at less than the cost of production, but in view of the fact that buyers at this time of the year cannot be induced to exceed actual requirements when making purchases, pressers do not see their way clear to the establishment of any better prices. For prime city brands the quotations remain at 62½¢. A few sales have been made at a fraction below that price. Western Oil is offered here very sparingly at present, as the pressers find they can get proportionately higher prices at home and in other markets outside of New York City.

*Fish Oils.*—Sales of crude Menhaden are still being made at 31¢ for light color and 30¢ for dark. Last accounts indicate some improvement in the catch of fish, but the offering of Oil is still moderate and there is no sign of modification of prices in the immediate future. There has been no movement of importance in the market for crude Sperm or Whale Oils. All the manufactured products are selling at former prices, but rather slowly.

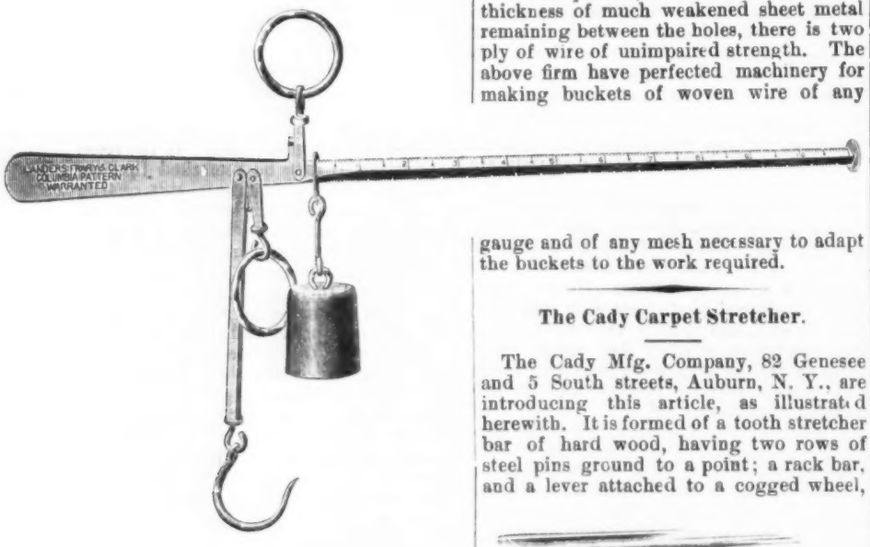
*Cocoanut Oil.*—Ceylon is neglected at present, the low price of tallow evidently restricting trading more or less. Only small jobbing sales are reported from store at 5⅛¢ @ 5¼¢ as to quantity and style of package. Future shipments have been weak, owing to the decline in silver, and at the close 4¾¢ would be accepted for shipments over the balance of the year, sellers' option. Cochin Oil is wanted only in a limited way at 5¾¢ on spot and 5⅝¢ from vessels on way.

*Olive Oil.*—Owing to reports of a short crop abroad, prices for common quality have advanced to 62¢ @ 64¢ as to quantity. Shipments are also higher, being quoted at 60¢, while some holders decline to shade 61¢. The advance has checked business.

*Spirits Turpentine.*—The movement in prices has been very narrow, and the market remains without distinctly new feature. Sales may be somewhat freer, but not large enough to enliven the market.

### Columbia Steelyard.

Landers, Frary & Clark, New Britain, Conn., and 298 Broadway, New York, are offering the trade the above article, as illustrated herewith. It is referred to as

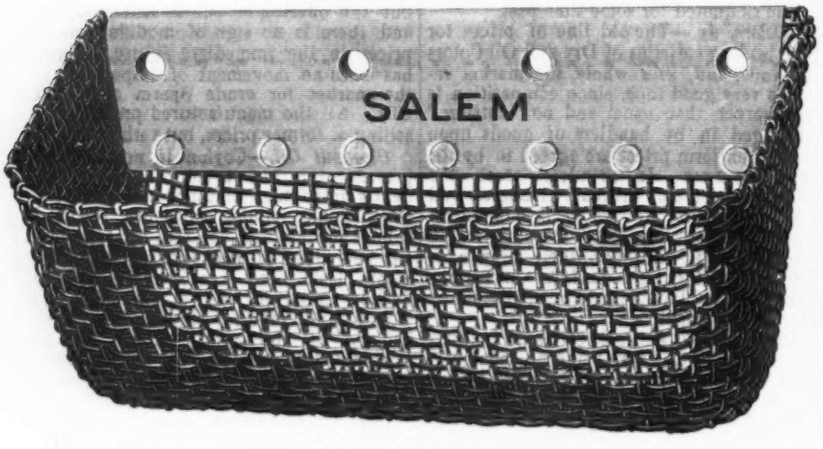



*Columbia Steelyard.*

light, strong and accurate, having all steel pivots, and as being a superior article. They are well finished, both fine polished and nickel plated, packed one in a box and especially adapted to the retail trade. The sizes made are 35 and 50 pounds.

### Woven Wire Elevator Bucket.

W. J. Clark & Co., Salem, Ohio, are offering this article, as illustrated herewith. The cut represents a bucket made of No. 14 wire, woven to ¼ inch mesh. A binding piece of sheet metal is rivited to the top of the back, through the two thicknesses of which bolts may pass to fasten the buckets to the carrying chains. Binding or reinforcing pieces are added to the upper edge




*Woven Wire Elevator Bucket.*

of the front of the bucket when intended to take their load from a boot.

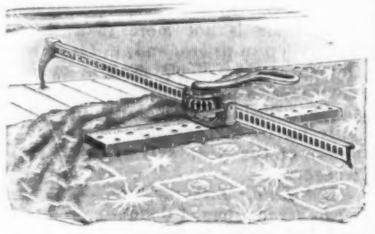
This style of bucket is designed for use in coal washing elevators, mines, dredging machines, &c., where the substance to be elevated is mixed with liquids which should be drained out as much as possible while being hoisted.

It is explained that in cases where the most prompt and complete separation is desired it has been the custom to make the holes in the bucket close together, which left so little metal between the holes that the buckets were easily broken.

The advantages of the use of woven wire for such buckets are that the openings can be as close together as the thickness of the wire will permit; and that instead of a thickness of much weakened sheet metal remaining between the holes, there is two ply of wire of unimpaired strength. The above firm have perfected machinery for making buckets of woven wire of any gauge and of any mesh necessary to adapt the buckets to the work required.

### The Cady Carpet Stretcher.

The Cady Mfg. Company, 82 Genesee and 5 South streets, Auburn, N. Y., are introducing this article, as illustrated herewith. It is formed of a tooth stretcher bar of hard wood, having two rows of steel pins ground to a point; a rack bar, and a lever attached to a cogged wheel,



*The Cady Carpet Stretcher.*

the cogs of which engage in the rack bar. The metal parts of the stretcher are all of malleable iron except the steel pins. A gravity pawl automatically engages the teeth in the rack bar, to hold whatever is taken up of the carpet in stretching. The malleable parts are pivoted to the wood stretcher bar, so that the stretcher may be worked at any angle; and the several parts are arranged so that when placed in position they are locked together, and cannot get apart or out of order by any handling or use. In operation the tooth at the end of the rack bar is driven into the floor at the base board or where desired; the teeth on the stretcher bar pressed into the carpet, and the lever or handle turned until the carpet is drawn as required. When the carpet is sufficiently stretched, the handle is released, and the stretcher holds the carpet in place until that portion is properly tacked, when the automatic pawl is lifted by the finger, and the operation repeated. When not in use the rack bar is turned parallel with the stretcher bar, requiring but a small space for storage. The manufacturers claim that the stretcher will stretch any carpet; that it will not break nor get out of order; that it will not tear the carpet; that the leverage is so great that a child can easily stretch the heaviest carpet, and that it is exceedingly handy and useful. The stretchers are packed one each in a paper box.

### The Marshall Ladder.

Ely & Wray, 16 Warren street, New York, are sole agents for the store ladder shown in the accompanying cuts. The

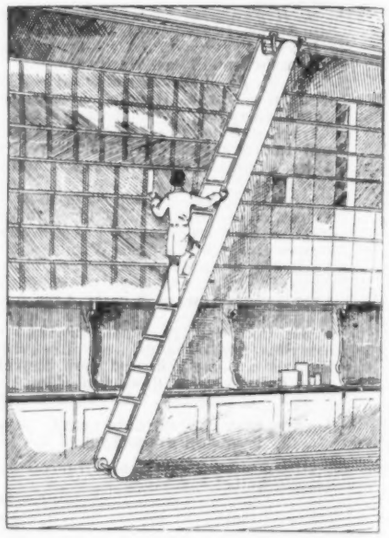


*Fig. 1.—The Marshall Ladder.*

ladder is held in the upright position by a carriage attached to a rod at the top, on which carriage are four wheels designed to run on hardwood rail, as shown in Fig. 2. The rail is bolted to the ceiling, allowing two wheels to run on each side of the center rail. The ladder runs on two wheels on the floor, and may be pushed to any desired position in front of the shelving, the ladder being the same distance from the shelving at top and bottom. The ladder is 12 inches wide inside, and is not as heavy as shown in Fig. 1, nor is the carriage as large. The ladder is as light as is consistent with strength, and presents a neat appearance.

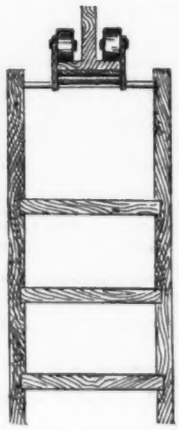
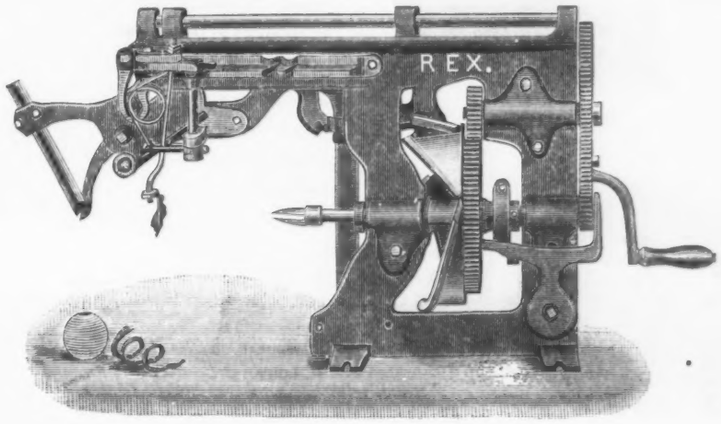


*Fig. 2.—Ladder in Detail.*

## The Rex Apple Parer and Corer.

Abbott & Boutell, Rochester, N. Y., are offering this article, as illustrated in the accompanying cut. Attention is called to points in the construction of the machine, as follows: The crank-gear shaft, the fork shaft and the cam all have long bushings; the cam gives the reciprocating carriage a direct and easy motion; the spring balances the knife arm in such a way as to remove all friction, and requires less tension than is usually given paring knife springs, thus allowing it to act quickly to prevent skipping; the paring knife guard is triangular shaped, giving six edges for use; the turn table and rack are double, giving strength to the cogs, and are at the top of the frame, away from the acid, leaving a large space for putting on apples; the brass corer tube is spun to give it the required taper, making it more durable than a drawn tube, and the corer tip-up has an entirely new motion. The manufacturers state that the paring knife arm is adjustable in every way, and is held well back from the fork to make room for putting on the apples; that the corer tip-up is self adjustable and has no guards to cause friction and wear out; that the carriage foot is adjustable to take up the wear; and that the crank is adjustable. The point is made that the long bearings assure durability, and that no springs are required to overcome the jar when the carriage reverses. The machine has a steel fork, and every machine will be drilled for a slicing knife, but none will be attached unless so ordered. The machines are designated and marked three-turn and four-turn. It is stated that the three-turn pares an apple with three turns of the crank, and the four-turn with four turns of the crank. To change from one to the other, the four gears for the turns are only required, as all the other parts of the machine are the same. The manufacturers claim that the Rex is simple, strong, well made, light-running, economical and durable; that the machines are put together with large square-head cap screws, and that the adjustments are all simple and durable. The machine is designed for use in evaporator and canning establishments, weighing, when boxed, 45 pounds.




*The Rex Apple Parer and Corer.*

## Keystone Metal Joint Fasteners.

Keystone Mfg. Company, Williamsport, Pa., are offering metal joint fasteners, as illustrated in the accompanying cuts. As shown in Fig. 1, these are made of sheet steel, to which is given a sharp penetrating edge adapted to be readily driven into soft or hard wood irrespective of the direction of the grain. The manufacturers claim that when so driven the corrugations interlock with the wood and hold it firmly together. Fig. 2 is an enlarged view of the fastener, showing more fully the diagonal corrugations, designed to make it also a draw clamp. The point is made by the manufacturers that if the joint is not close together the fastener draws it up tight, and though it may appear insufficient, it attains great strength when driven. The fasteners are designed to take the place of dowels, and their proper use, it is claimed, dispenses with tenons and mortises and makes a stronger, better joint with much less expense than by the ordinary manner. Fig. 3 shows some of the various forms of joints to which the fasteners are adapted. The fasteners are made ¼, ⅜, ½, ⅝, ¾, ⅞ and 1 inch wide, with from two to five corrugations.

*Fig. 1.—Keystone Metal Joint Fasteners.*

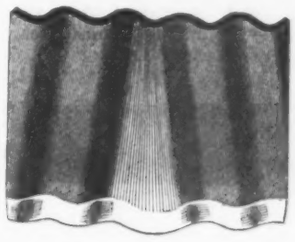


*Fig. 2.—Showing Diagonal Corrugations.*

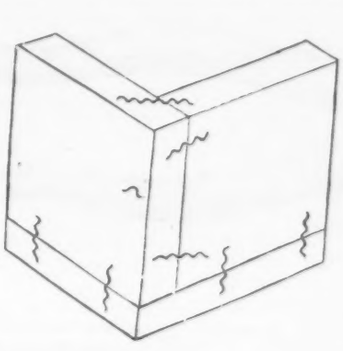


*Fig. 3.—Application of Joint Fasteners.*

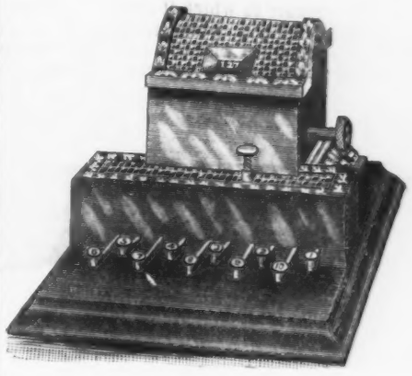
## Leather-Tipped Chisel Handles.

The Copeland Hardware Mfg. Company, Worcester, Mass., are offering the trade improved leather-tipped handles, as shown in the accompanying cuts. In addition to those illustrated, socket framing chisel handles are finished in the same manner. The handles are made in hickory and apple woods, well finished. They are described as thoroughly seasoned, protected at the top by layers of the best sole leather thoroughly cemented and pressed on a tenon turned from the handle itself. This feature is referred to as doing away with the jar accompanying a common chisel handle, and also serves to protect the mallet. The handles are put up one dozen in a box, assorted, nine different assortments being carried in stock.

*Leather-Tipped Chisel Handles.*

## Standard Adding Machine.

The accompanying illustration represents Gatewood's Standard Adding Machine, put upon the market by the St Louis Works, 107 South Seventh street, St. Louis, Mo. As will be seen by the engraving, the device in some parts resembles a typewriting machine, having ten keys, each of which represents the figure marked thereon. By touching the keys, sums in addition are mechanically performed, thus removing nearly all men-



*Gatewood's Standard Adding Machine.*

tal effort. The index in the top of the case displays at all times the sum of the figures added, while touching a special key and rewinding the device brings the adjustment back to zero. The machine is described as being compact and convenient in size, its width being 6 inches and the length 12 inches. It can be placed on the desk alongside of the ledger and operated readily. Unlike other machines with which it may be compared, there is a key for each numeral and no combinations are necessary in adding by means of it.

### The New Acme Axle.

Wentworth Spring & Axle Company, Gardiner, Maine, are putting on the market an improved form of axle, as shown in the accompanying cuts, which fully illustrate the construction of the Acme and show the manner in which it keeps grit or water out of the box, while keeping the oil in. It is remarked that this axle is not subject to an unsightly appearance of accumulated oil and dust, and that as the oil is retained clean much less frequent oiling is necessary. It is stated that the strength of the axle is not reduced, as it is full size at the shoulder, where the strength is needed, and that the bearing surface is long. The manufacturers claim that it has one-third more washer surface than other axles, and that as its washers are protected they will wear a long time. Fig. 3 shows the neat finish it gives to the hub, and the point is made that the device is simple, secure and strong, and that the axles and boxes are as easily adjusted and as readily cared for as in regular grades.

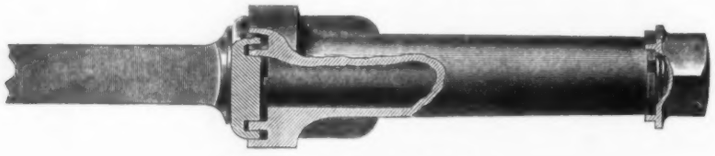


*Fig. 1.—The New Acme Axle.*

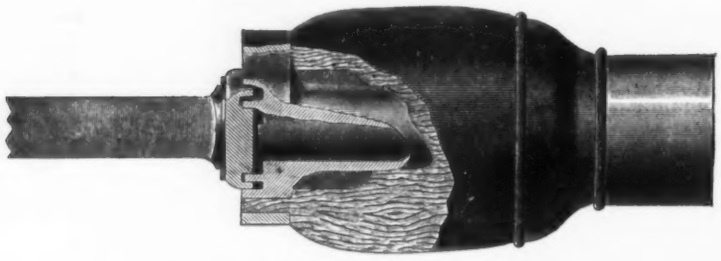


*Fig. 2.—Axle with Hub and Box Cut Away.*

*Fig. 3.—The Appearance of Hub and Axle at the Shoulder.*

### Safety Side-Cutting Plier.

The Peck, Stow & Wilcox Company, Southington, Conn., 27 Chambers street, New York, are introducing a safety side-cutting plier, as here illustrated, for the use of linemen, electricians and others whose duties require the cutting of wires heavily charged with electricity. The handles of the plier are covered with a patented insulating material called molded mica, which is guaranteed by the manufacturers to insulate against a current of 2500 volts. The company call especial attention to the fact that the covering is not brittle, and that it will neither break nor flake off if the plier is dropped. Another feature alluded to is the hexagon rivet. The cutter is raised and the whole tool made entirely of steel, and the statement is made that it will sustain any pressure of the hand that can be put upon it. The sizes furnished are 6 and 8 inch, and each is put up singly in a double pasteboard box. These goods, without the insulation, are supplied in 5, 6, 7 and 8 inch sizes, both black and nickel plated, for ordinary wire cutting, packed six in a box.

*Safety Side-Cutting Plier.*

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# Current Hardware Prices.

## AUGUST 24, 1892.

*Note.*—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

### Adjusters, Blind—

Domestic.....℔ doz $3.00, 33⅓%
Excelsior....℔ doz $10.00.....50&10&2%
North's.....list net @ 10%
Zimmerman's—See Fasteners Blind.

### Ammunition—See *Caps, Cartridges, Shells, &c*

### Anvils—

Eagle Anvils, ℔ ℔ 10¢.....15@15&5%
Peter Wright's.....11@11½%
Armitage's Mouse Hole.....10½@11¢
Am. Wrought, Horse shoe brand.11@11½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

### Anvil Vise and Drill—

Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5%

### Apple Parers—See *Parers, Apple, &c.*

### Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher)
P. S. & W. Co.
Rockford Bit Company
} 70&10@70&10&5%

Cook's, Douglass Mfg. Co.....55%
Cook's, N. H. Copper Co. 50&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jennings & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ℔ set, 32⅛ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&10%
Pugh's Black.....20%
Pugh's Jennings Pattern.....30%
Car Bits.....60@60&10
Car Bits, P. S. & W. Co.....60&10
Snell's Car Bits.....60%
L'Hommedieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits.....30&10

### Bit Stock Drills—

Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

### Expansive Bits—

Clark's small, $18; large, $36..35@35&10%
Ives' No. 4, ℔ doz. $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

### Gimlet Bits—

Common.....℔ gross $2.75@$3.25
Diamond.....℔ doz $1.25....40&10%
Bee.....25@25&5%
Double Cut, Sheardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co.....30&10%
Double Cut, Hartwell's, ℔ gro.....$5.25%
Double Cut, Douglass'.....40&10%
Double Cut, Ives.....60@60&10%

### Hollow Augers—

Ives'
French, Swift & Co.
Douglass'
} 33⅓@33⅓ &10%

Bonney's Adjustable, ℔ doz $48...40&10%
Stearns'.....30&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....30%
Wood's.....25@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

### Ship Augers and Bits—

L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10&5%

### Awl Hafts—See *Hafts, Awl.*

### Awls—

Awls, Sewing, Common....℔ gr. 85¢@90¢
Awls, Should. Peg.....℔ gr. $1.50@$1.55
Awls, Pat. Peg.....℔ gr. 35¢@38¢
Awls, Shouldered Brad..℔ gr. $1.30@ 1.40
Awls, Handled Brad....℔ gr. $2.50@$3.00
Awls, Handled Scratch..℔ gr. $4.00@4.50
Awls, Socket Scratch..℔ doz. $1.10@$1.20

### Awl and Tool Sets—See *Sets, Awl and Tool.*

### Axes—

| | Plain. | | Beveled. |
|---|---|---|---|
| First quality, best brands | $7.00 | @ | $7.50 |
| First qual., other brands | 6.50 to 6.75 | @ | 7.00 |
| Second quality | 5.50 | | 6.00 |

### Axle Grease—See *Grease, Axle.*

### Axles—

No. 1....3½¢@4¼¢, No. 2, 5¢@6¢
Nos. 7 to 14.....60&10%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
} 3% cash

Concord Axles, loose collar.....4½¢@6¢
Concord Axles, solid collar.....5½¢@7¢
National Tubular Self Oiling.....33⅓%@33⅓&5%

### Bag Holders—See *Holders, Bag.*

### Balances—

Spring Balances.....40%

| | No. 2000 | 20 | 30 |
|---|---|---|---|
| Chatillon, ℔ doz..... | $0.80 | 0.95 | 1.75 net |

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

### Barb Wire.—See *Wire, Barb.*

### Bars—

#### Crow—

Cast Steel.....℔ ℔ 3½¢
Iron, Steel Points.....℔ ℔ 3¢

### Basins, Wash—

Standard Fiberware, No. 1, 10½-inch, $2; 12-inch, $2.25; 13½-inch, $2.75; 15-inch, $3.25.

### Beams, Scale—

Scale Beams, List Jan. 12, '82..50&10@50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

### Beaters—

#### Egg—

Dover.....℔ doz $..50
Duplex (Standard Co.).....℔ doz $1.25
Rival (Standard Co.).....℔ doz $1.00
Duplex Extra Heavy (Standard Co.)....
℔ doz. $3.50
Bryant's.....℔ gross $14.00
Double (H. & R. Mfg. Co.), ℔ gro., No. 0 $12.00; No. 1, $15.00; No. 2.....$26.00
Easy (H. & R. Mfg. Co.).....℔ gro $12.00
Triple (H. & R. Mfg. Co.).....℔ gro $16.50
Spiral.....℔ gro $4.25 @ $4.50
Improved Acme (H. & R. Mfg. Co.)....
℔ gro. $9.00
Paine, Diehl & Co.'s.....℔ gro. $24.00
Silver & Co.....℔ doz $5.50

#### Culinary—

Keystone, P. D. & Co., Each, No. 1, $1; No. 2, $2.....20%

### Bells—

#### Cow—

Common Wrought.....60&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Kentucky Durham.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%

#### Door—

Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank, Brooks'.....50&10&2%
Crank, Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%

#### Electric—

Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....30%

#### Hand—

Light Brass.....70&10%
Extra Heavy.....70%
White.....70%
Silver Chime.....33⅓&10%
Globe Cone's Patent).....25&10@35%

#### Miscellaneous—

Call.....40@40&5%
Farm Bells.....℔ ℔ 3¢&3½¢
Steel Alloy Church and School Bells..40%

### Bellows—

Blacksmiths'.....60&10@60&10&5%
Molders'.....40&10@50%
Hand Bellows.....40&10@50%

### Belting, Rubber—

Common Standard.....70@10@75&5%
Standard.....70&5@70&10%
Extra.....60&10@60&10&5%
N.Y.B.&P. Co., Carbon.....60%
N.Y.B.&P.Co., Diamond.....50%
N.Y.B.&P.Co., Para.....40%

### Bench Stops—See *Stops, Bench*

### Benders and Upsetters, Tire—

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

### Bits—

Auger, Gimlet, Bit Stock Drills, &c., see *Augers and Bits.*

### Bit Holders—See *Holders.*

### Blind Adjusters—See *Adjusters, Blind*

### Blind Fasteners—See *Fasteners, Blind.*

### Blind Staples—See *Staples, Blind.*

### Blocks—

Cleveland Block Co., Mat. Iron.50@50&10%
Moore's Novelty, Mal. Iron.....50%
Sure Grip Steel Tackle Blocks.....25%

### Bolts—

#### Carriage, Machine, &c.—

Com. list June 10, '84.....75&10&5&2%
Genuine Eagle, Norway, list Oct. '84.....
80@80&10%
Phila. pattern, list Oct. 7, '84..75@75&10%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890.....80@80&5%
Bolt Ends, list Jan. 1, 1890.....
75&10@75&10&5%

#### Door and Shutter—

Cast Iron Barrel, Square, &c.....70&10%
Cast Iron Shutter Bolts.....70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts..60&10@60&10&5%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's...60&10%
Wr't Shutter, Brass Knob.....40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....55&10%
Wr't Sunk Flush, Stanley's list....50&10%
Wr't B. K.Flush, Co' mr.....55&10%

#### Stove and Plow—

Stove.....60%
Plow.....60&5%
R. B. & W., Plow.....55%

#### Tire—

Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire list Feb. 28, '83.....65%
Keystone, Philadel., list Oct. '84.....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phila., list Oct. 16, '84.....75%
Eagle, Phila., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R. B. & W., Philadel., list Oct. 16, '84...80%

### Borers, Tap—

Common and Ring.....20&10%
Ives' Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10&30%
Clark's.....33⅓&35%

### Borax—

Per ℔.....9½@10½¢

### Boring Machines—See *Machines, Boring.*

### Bow Pins—See *Pins, Bow.*

### Boxes, Wagon—

Per ℔.....2¾¢

### Braces—

American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5
Ball Braces, net.....$1.12 to $1.25
Amidon's,
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Ratchet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10; 10 in.....$2.25
Buffalo Bail.....$1.10@$1.15
Barber's,
Buffalo Bail.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's...50&5&50&10%
Fray's Nos. 70 to 120, 81 to 123, 207 to 414.....50&10%
Ives' New Haven Novelty.....70&70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barber's.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

### Brackets—

Shelf, plain,
Regular, list.....65@70%
Sargent's list.....66⅔@66⅔&10%
Shelf, fancy,
Sargent's list.....66⅔@66⅔&10%
Other makes at a wide range of prices.

### Bright Wire Goods—See *Wire.*

### Broilers—

| Henis' Self-Basting, | Inch..... | 9 | 10 | 9x11 |
|---|---|---|---|---|
| | Per doz... | $4.50 | 5.50 | 6.50 |

New Haven.....50%
Wire Goods Co.....65&10%
Morgan Odorless.....℔ doz. $12, 33⅓%

### Buckets, Well—

#### Galvanized—

Hill's.....℔ doz. 12 qt. $4.25; 14 qt. $5.25
Iron Clad.....℔ doz. 14 qt. $4.25@4.50
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....℔ doz $4.00

### Bull Rings—See *Rings, Bull.*

### Butcher's Cleavers—See *Cleavers, Butchers'.*

### Butts—

#### Brass—

Wrought Brass.....80@80&10%
Cast Brass, Tiebout's.....50%
Cast Brass, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

#### Cast Iron—

Fast Joint, Narrow.....50&10&5@60%
Fast Joint, Broad.....50&10@60%
Loose Joint.
Loose Joint, Japanned.
Loose Joint, Jap. with Acorns.
Parliament Butts.
Mayer's Hinges.
Loose Pin, Acorns.
Loose Pin, Acorns, Japanned.
Loose Pin, Acorns, Japanned, Plated Tips.
} .75@75 &5%

#### Wrought Steel—

Fast Joint, Narrow.
Fast Joint, Lt. Narrow.
Fast Joint, Broad.
Loose Joint, Broad.
Table Butts, Back Flaps, &c.
Inside Blind, Regular.
Indide Blind, Light.
Loose Pin.
} .75@75 &5%

Bronzed Wrought Butts.....50%

### Calipers—See *Compasses.*

### Calks, Toe—

Gautier, One Prong, Blunt.....5½@6¢
Burke's One Prong, Blunt.....5½@6¢
Burke's, Two Prong, Blunt.....7½@8¢
Burke's, One Prong, Sharp.....6½@7¢

### Can Openers—See *Openers, Can.*

### Caps—

#### Percussion—

Hicks & Goldmark's and Union Metallic Cartridge Co.....℔ 1000
F. L. Waterproof, 1-10's.....35@37¢
E. B. Trimmed Edge, 1-10's.....47@50¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....47@50¢
Musket, Waterproof, 1-10's.....50@55¢
G. D.....27@30¢
S. B. Genuine Imported.....45¢
Eley's E. B.....50@58¢
Eley's D Waterproof, Central Fire..$1.60

#### Primers—

Berdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Sheils) $1.00, 2%
All other Primers, $1.20.....2%

### Cards—

Watson's Cotton, Wool, Horse and File, list January 28, 1891.....25%

### Carpet Stretchers—See *Stretchers, Carpet.*

### Carpet Sweepers—See *Sweepers, Carpet.*

### Cartridges—

Rim Fire Cartridges.....50&5&2%
Rim Fire Military.....15&2%
Cent. Fire, Pistol and Rifle.....25&5&2%
Cent. Fire, Military and Sporting.....15&5&2%
Blank Cartridges, except 22 and 32 cal., additional 10% on above discounts.
Blank Cartridges, 22 cal., $1.75.....2%
Blank Cartridges, 32 cal., $3.50.....2%
Primed Shells and Bullets.....15&5&2%
B. B. Caps, Round Ball, $1.75.....2%
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

### Casters—

Bed.....
Plate.....
Shallow Socket.....
} Brass.....55@55&10%
} Others....60@60&10%

Deep Socket.....40&10%
Yale Casters, low list.....45%
Yale, Gem.....70%
Martin's Patent (Phœnix).....45&10@50%
Payson's Anti-friction.....70%
Payson's Truck.....60%
Giant Truck Casters.....50%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%

### Cattle Leaders—See *Leaders, Cattle.*

### Cement—

Victor Elastic.....5 ℔ pails ℔ ℔ 5¢

### Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890...60@60&10%
American Coil, in cask lots.

| 3-16 | ¼ | 5-16 | ⅜ | 7-16 | ½ | ⅝ | ¾ |
|---|---|---|---|---|---|---|---|
| $7.60 | 5.50 | 4.45 | 3.80 | 3.65 | 3.50 | 3.40 | 3.25 |

Less than cask lots, add¼¢@½¢ ℔ ℔
German Coil, list July 12, 1892...60@60&5%
German Halter Chain, list July 12, 1892.....60@60&5%
Covert Halter.....60&2%
Covert Traces.....35&2%
Covert Heel Chain.....50&2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....℔ ℔ 5½¢@6¢
Jack Chain, Iron.....75&10¢@80%
Jack Chain, Brass.....75@75&10

### Chalk—

White, case lots. ℔ gr 50¢; small lots 55@56¢
Red, case lots....℔ gr 67¢; small lots 77@78¢
Blue, case lots....℔ gr 75¢; small lots 85¢
See also Crayons.

### Chalk Lines—See *Lines*

### Chisels—

#### Socket Framing and Firmer

P. S. & W.
New Haven
Witherby ..75@75&10%
Mix
Ohio Tool Co.
Douglass ..75@75&5%
Buck Bros. ..30%
Merrill ..60&10@60&10&5%
L. & I. J. White ..30@30&5%

#### Tanged and Miscellaneous.

Tanged Firmers ..40&10@50%
Butchers' ..$4.75@$5.00
Spear & Jackson's ..$5 to £
Buck Bros. ..30%
Cold Chisels, ℔ ..15@16%

### Chucks—

Beach Pat. ..each, $8.00 ..20%
Morse's Adjustable, each, $7.00 ..20@20&5%
Danbury ..each, $6.00 ..30@30&5%
Syracuse, Ball Pat. ..25%
Graham Patent ..33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks ..33⅓%
Universal Lathe Chucks ..40%
Independent Lathe Chucks ..40%
Drill Chucks ..15%
Union Mfg. Co.
Victor ..$8.50, 25%
Combination ..40%
Universal ..40%
Independent ..40%

### Churns—

Tiffin Union, each, 5 gal. $3.25; 7 gal., $3.75; 10 gal., $4.25.
McDermaid Star Barrel Churn, each 6 gal., $2.60; 10 gal., $2.75; 15 gal., $3.00; 20 gal., $3.25.

### Clamps—

R. I. Tool Co.'s Wrought Iron ..25%
Adjustable, Cincinnati ..15&10%
Adjustable, Hammers ..15%
Adjustable, Stearn's ..30@30&10%
Stearn's Adjustable Cabinet and Corner ..30@30&10%
Cabinet, Sargent's ..60%&10%
Carriage Makers', Sargent's ..70&10%
Carriage Makers', P., S. & W Co. ..40&10%
Eberhard Mfg. Co. ..40&5@40&10%
Warner's ..40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenter's, Cincinnati ..25&10%

### Cleavers, Butchers'—

Bradley s ..25@30%
L. & I. J. White ..20@5%
Beatty's ..40@40&5%
New Haven Edge Tool Co.'s ..40%
P., S. & W. ..33⅓&5@33⅓&10%
Foster Bros. ..30%
Schulte, Lohoff & Co. ..40@40&5%

### Clips—

Norway, Axle, ¼ & 5-16 ..55&5&5%
2d grade Norway Axle, ¼ & 5-16 ..65&5%
Superior Axle Clips ..60%&5&70%
Norway Spring Bar Clips, 5-16 ..60&5&5%
Wrought Iron Felloe Clips ..℔ ..5¢
Steel Felloe Clips ..℔ ..5¢
Baker Axle Clips ..25%

### Cloth and Netting, Wire—See *Wire, &c.*

### Cockeyes ..50%

### Cocks, Brass—

Hardware list ..50&2%

### Coffee Mills—See *Mills, Coffee.*

### Collars, Dog—

Chapman Mfg. Company ..50&10@60%
Medford Fancy Goods Co. ..40&10@50%
Embossed, Gilt, Pope & Steven's list, 30&10%
Leather, Pope & Steven's list ..40%
Brass, Pope & Steven's list ..40%

### Combs, Curry—

Fitch's ..50&10@50&10&10%
Rubber, per doz., $10.00 ..20%
American Curry Comb Co. ..Net prices

### Compasses, Dividers, &c.

Compasses, Calipers, Dividers. 70@70&10%
Bemis & Call Co.'s
Dividers ..60&5%
Compasses and Calipers ..50&5%
Wing and Inside or Outside ..50&5%
Double ..60%
Call's Patent Inside ..30%
Excelsior ..50%
J. Stevens & Co.'s ..25&10%
Starrett's
Spring Calipers and Dividers ..25&10%
Lock Calipers and Dividers ..25%
Combination Dividers ..25%

### Coopers' Tools—See *Tools, Coopers'.*

### Cord—

#### Sash—

Common ..℔ ..10@11¢
Patent, good quality ..℔ ..12@12½¢
White Cotton Braided, fair, ℔ ..24@25¢
Common Russia Sash ..℔ ..12½@13¢
Patent Russia Sash ..℔ ..14¢
Cable Laid Italian Sash ..℔ ..21@22¢
India Cable Laid Sash ..℔ ..12¢
Silver Lake—
A quality, White, 50¢ ..25%
A quality, Drab, 55¢ ..25%
B quality, White, 30¢ ..10%
B quality, Drab, 35¢ ..10%
Sylvan Spring, Extra Braided, White ..34¢
Sylvan Spring, Extra Braided, Drab ..30¢
Semper Idem, Braided, White ..30¢
Egyptian, India Hemp, Braided ..20¢
Massachusetts, White ..26¢
Samson—
Braided, White Cotton, 50¢ ..30@30&5%
Braided, Drab Cotton, 55¢ ..30@30&5%
Braided, Italian Hemp, 55¢ ..30@30&5%
Braided, Linen, 80¢ ..30@30&5%
Tate's Cotton Braided, White, ℔ ..28¢, 10%

#### Wire Picture—

Braided or Twisted ..75&10%

### Corkscrews—See *Screws, Cork.*

### Corn Knives and Cutters—See *Knives, Corn.*

### Crackers, Nut—

Table (H. & B. Mfg. Co) ..40%
Blake's Pattern, ℔ doz., $2.00 ..10%
Turner & Seymour Mfg. Co. ..50%

### Cradles—

Grain ..50&5&2@50&10&2%

### Crayons—

White Crayons, ℔ gross ..10¢
D. M. Stewart Mfg. Co., Metal Workers', ℔ gross, $2.50 ..25%
D. M. Stewart Mfg. Co., Rolling Mill, ℔ gross, $2.50 ..25%
See also *Chalk.*

### Crow Bars—See *Bars, Crow.*

### Curry Combs—See *Combs, Curry.*

### Curtain Pins—See *Pins, Curtain.*

### Cutters—

#### Meat—

Dixon's, ℔ doz. ..40&5%

| Nos. | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | $14.00 | $17.00 | $19.00 | $30.00 |

Woodruff's, ℔ doz. ..40&5%

| Nos. | | 100 | 150 |
|---|---|---|---|
| | | $15.00 | $18.00 |

Hale's Pattern, ℔ doz. ..70@70&5%

| Nos. | 11 | 12 | 13 |
|---|---|---|---|
| | $27.00 | $33.00 | $45.00 |

American ..30%

| Nos. | 1 | 2 | 3 | 4 | B | 5 |
|---|---|---|---|---|---|---|
| Each | $5 | $7 | $10 | $25 | $50 | $60 |

Enterprise ..30%

| Nos. | 10 | 12 | 22 | 32 | 42 |
|---|---|---|---|---|---|
| Each | $3 | $2.50 | $4 | $6 | $15 |

Great American Meat Cutter ..30%

| Nos. | 112 | 116 | 118 | 120 | 122 |
|---|---|---|---|---|---|
| Each | $2.00 | $2.75 | $3.00 | $3.50 | $4.00 |

Miles' Challenge, ℔ doz. ..45@45&10%

| Nos. | 1 | 2 | 3 |
|---|---|---|---|
| | $22.00 | $30.00 | $40.00 |

Home No. 1, ℔ doz., $28.00 ..55&10%
Draw Cut, each:

| Nos. | 5 | 2 | 6 | 8 | |
|---|---|---|---|---|---|
| | $50 | $75 | $80 | $225 | ..20@25% |

Beef Shavers (Enterprise) ..20&10@30%
Little Giant (P. S. & W. Co.) ..50%
Chadborn's Smoked Beef Cutter, ℔ doz., $60.00

#### Tobacco—

Champion ..20&10@30%
All Iron ..℔ doz., $4.25
Nashua Lock Co.'s .. ℔ doz., $18.00, 50@55%
Wilson's ..55%
Sargent's ..℔ doz., $24.00, 55&10
Acme ..℔ doz., $20.00, 40%

#### Washer—

Smith's Pat. ..℔ doz., $12.00, 20&10&10%
Johnson's ..℔ doz., $11.00, 33⅓%
Penny's .. ℔ doz., Pol. $14 ; Jap'd, $16, 55%
Appleton's ..℔ doz., $16.00, 60&10%
Bonney's ..30&10%
Cincinnati ..25&10%

## Dampers, &c.—

Dampers, Buffalo ..40&10%
Buffalo Damper Clips ..40&10%
Crown Damper ..40%
Excelsior ..40&10%

### Diggers, Post Hole, &c.—

Samson post Hole Digger, ℔ doz., $36.00 ..25%
Fletcher Post Hole Augers, ℔ doz., $36.00, 20%
Eureka Diggers .. ℔ doz., $12.50@$14.00
Leed's ..℔ doz., $8.00@$9.00
Vaughan's Post Hole Auger, ℔ doz., $13.00@$14.00
Kohler's Little Giant ..℔ doz., $18.00
Kohler's Hercules ..℔ doz., $15.00
Kohler's New Champion .. ℔ doz., $9.00
Schniedler ..℔ doz., $18.00
Ryan's Post Hole Diggers .. ℔ doz., $24.00
Cronk's Post Bars, ℔ doz., $60.00, 50&5@50&10%
Gibb's Post Hole Digger ..℔ doz., $15.00
Imperial ..℔ doz., $15.00
Shimer's Hollow Handle .. ℔ doz., $24.00, 50%

### Dividers—See *Compasses.*

### Dog Collars—See *Collars, Dog.*

### Door Springs—See *Springs, Door.*

### Drawers.

Money, ℔ doz ..$18@$20

### Drawing Knives—See *Knives, Drawing.*

### Drills and Drill Stocks—

Blacksmiths' ..each $1.75
Blacksmiths' Self-Feeding, each $7.50, 20%
Breast, P. S. & W. ..40&10%
Breast, Wilson's ..30&5%
Breast, Millers Falls ..each $3.00, 25%
Breast, Bartholomew's ..each $2.50 ..25&10&40%
Ratchet, Merrill's ..30@20&5%
Ratchet, Ingersoll's ..25%
Ratchet, Parker's ..20@20&5%
Ratchet, Whitney's ..20&10%
Ratchet, Weston's ..20@25%
Ratchet, Moore's Triple Action ..25@30%
Ratchet, Curtis & Curtis ..30%
Whitneys Hand Drill, Plain, $11.00; Adjustable, $12.00 ..20&10%
Wilson's Drill Stocks ..10%
Automatic Boring Tools ..$1.75@$1.85

#### Twist Drills—

Cleveland ..50&10&5%
Diamond, W. & B. ..50&10&5%
Graham's Pat. Groove Shank ..50&10&5%
Morse ..50&10&5%
New Process ..50&10&5%
Standard ..50&10&5%
Syracuse (Metal list) ..50&10%

### Drill Bits or Bit Stock Drills—See *Augers and Bits.*

### Drill Chucks—See *Chucks.*

### Dripping Pans—See *Pans, Dripping.*

### Drivers, Screw—

Douglass Mfg. Co. ..20@20&10%
Disston's ..50%
Buck Bros. ..30%
Stanley R. & L. Co.'s
No. 64, Varnished Handles ..65&10%
No. 86 ..70&10%
Sargent & Co.'s
No. 1, Forged Blade ..60&10&10%
Nos. 20, 30 and 60 ..60⅔&10&10%
P. S. & W. ..70%
Knapp & Cowles
No. 1 ..60&20@70%
No. 2 ..60&10&10@70&5%
No. 3 ..60&5@60&10%
Nos. 4 and 00, Acme and Ideal ..50&5@
50&10&5%
Stearns' ..25&10&5%
Gay & Parsons ..35%
Champion ..25&10%
Clark's Pat. ..30@33⅓%
Crawford's Adjustable ..30%
Ellrich's Socket and Ratchet ..25@25&10%
Allard's Spiral, new list ..25%
Kolb's Common Sense .. ℔ doz., $6.00, 25&10%
Syracuse Screw-Driver Bits ..30&30&5%
Screw Driver Bits ..℔ doz., 50@75¢
Screw Driver Bits, Parr's .. ℔ gross, $6.25
Fray's Hol. H'dle Sets ..No. 3, $12.00, 45%
P. D. & Co.'s All Steel ..50%
Cincinnati ..25&10%
Brace Screw Drivers ..25&10%
Buck Bros.' Screw Driver Bits ..27½&5%
Goodell's Automatic ..50%
Mayhew's Black Handle ..70%
Mayhew's Monarch ..45&10%

## Egg Beaters—See *Beaters, Egg.*

### Egg Poachers—See *Poachers, Egg.*

### Electric Bell Sets—See *Bells, Electric.*

### Emery—No. 4 to No. 54 to Flour, CF.

| | 46 gr. | 150 gr. | F.FF. |
|---|---|---|---|
| Kegs, ℔ .. | 4½¢ | 5 ¢ | 2½¢ |
| ½ kegs, ℔ .. | 4¾¢ | 5¼¢ | 2¾¢ |
| ¼ kegs, ℔ .. | 5 ¢ | 5½¢ | 3 ¢ |
| 10-℔ cans, 10 in case .. | 6 ¢ | 6¼¢ | 5 ¢ |
| 10-℔ cans, less than 10 .. | 10 ¢ | 10 ¢ | ¢ |

### Enameled and Tinned Ware—See *Ware, Hollow.*

### Escutcheon Pins—See *Pins, Escutcheon.*

### Escutcheons—

Door Lock .. Same dis. as Door Locks.
Brass Thread ..60@60&10%
Wood ..25%

### Expanded Metal—List No. 5.

Lathing ..10%
Fencing, Painted Sheets ..20%
Netting, Painted Sheets ..20%
Door Mats, Galvanized ..25%
Window Guards, Paneled ..15%
Tree Guards, Paneled ..15%

### Extractors, Lemon Juice—See *Squeezers, Lemon.*

## Fasteners, Blind—

Mackrell's, ℔ doz., $1.00 ..20@20&10%
Van Sand's Screw Pat, $15 ℔ gr., 60&10%
Van Sand's Old Pat., $15 ℔ gr. ..55&10%
Austin & Eddy No. 2008 ..℔ gr., $9.00
Security Gravity ..℔ gr., $9.00
Zimmerman's ..45%

### Faucets—

Fenn's ..40%
Bohren's Pat. Rubber Ball ..25%
Fenn's Cork Stops ..33⅓%
Star ..60%
Frary's Pat. Petroleum ..40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key ..50%
Star, Metal Plug, new list ..40%
Lockport, Metal Plug, reduced list. 60%
Metallic Key, Leather Lined ..60&10@60&10&10%
Cork Lined ..70&5@70&10%
Burnside's Red Cedar ..50%
Burnside's Red Cedar, bbl. lots ..50&10%
John Sommers'
Peerless Best Block Tin Key ..40%
IXL, 1st quality, Cork Lined ..50%
Diamond Lock ..40%
Perfection, Fla. Red Cedar ..50%
Goodenough Cedar ..50%
Boss Metallic Key ..50%
Reliable Cork Lined ..60%
Western Pattern Cork Lined ..50%
Self Measuring
Enterprise, ℔ doz., $36.00 ..20&10%
Lane's ℔ doz., $36.00 ..25&10%
Victor ..℔ doz., $36.00 25&10%

### Felloe Plates—See *Plates, Felloe.*

### Fifth Wheels—

Derby and Cincinnati ..45&5%
Brewster ..50&5%

### Files—

#### Domestic—

Nicholson Files, Rasps, &c ..60&10@60&10&5%
Nicholson (X.F.) Files ..25%
Nicholson's Royal Files (Seconds) ..75%
Extra prices on certain sizes.)
G. & H. Barnett (Black Diamond) 60&10@60&10&5%
Arcade ..60&10@60&10&10%
Eagle ..60&10&5@60&10&10%
Other makers, best brands, 60&10@60&20%
Fair brands ..60&10&10@70&5%
Second quality ..70&10@75&10%
Heller's Horse Rasps ..50&7½@50&10%
McCaffrey's Horse Rasps ..50&10%
Chelsea Horse Rasps, Hand Cut ..50&10%
Arcade Horse Rasps ..60&10%

#### Imported—

Butcher ..Butcher's list, 20%
Stubs ..Stubs list, 25@30%

### Fixtures, Grindstone—

Sargent's Patent ..70&10%
Rending Hardware Co. ..30&10%
P., S. & W. Co. ..50&10%

### Fluting Machines—See *Machines, Fluting.*

### Fluting Scissors—See *Scissors, Fluting.*

### Fodder Squeezers—See *Squeezers, Fodder.*

### Forks—

Hay, Manure, &c. ..Asso. List, 70@70&5%
Hay, Manure, &c., Phila. List, 60@60&10%
Plated, see Spoons.

### Frames—

#### Saw—

White Vermont ..℔ gro., $9.00@$10.00
Red, Polished and Varnished ..℔ doz., $1.50, 25%

### Screen, Window and Door—

Porter's Pat. Window and Door Frame, 33⅓&10%
Warner's Screen Corner Irons ..33⅓&33⅓&10%
Stearns' Frames and Corners. 25@25&10%
Cortland ..40@40&5

### Freezers, Ice Cream—

White Mountain ..60@60&5%
Granite State ..65@65&5%
Arctic ..70@70&5%
American ..60%
Buffalo Champion ..65@65&5%
Shepard's Lightning ..65@65&5%
Gem ..65%
Blizzard ..70%
Double Action Crown ..60%
Crown ..60%
Star ..60%
Peerless ..60&10%
Giant ..60%
Zero ..60&10&10%
Boss and Pet ..60&10&10&10%
Keystone, P., D. & Co., each, $1.50 ..20%

### Fruit and Jelly Presses—See *Presses, Fruit and Jelly.*

### Fry Pans—See *Pans, Fry.*

### Funnels—

Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10%; 2 to 5 gro., 20%; 5 to 10 gro. ..30%
*Copper*, 1 to 6 doz., 15%; 6 to 12 doz., 20%; over 12 doz. ..25%

### Furnaces, Soldering—

Burgess No. 3 Gem, tin reservoir ..$7.00
Burgess No. 3 Gem, Copper reservoir. $8.50

### Fuse—Dis. 12½%. ℔ 1000 ft

Common Hemp Fuse, for dry ground. $2.70
Common Cotton Fuse, for dry ground. 2.85
Single Taped Fuse, for wet ground.. 3.85
Double Taped Fuse, for very wet gr.. 4.80
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water. 12.00

## Gates, Molasses—

Stebbin's Pattern ..80@80&5%
Stebbin's Genuine ..60&10&10%
Stebbin's Tinned Ends ..40&10%
Chase's Hard Metal ..50&10%
Bush's ..20%
Lincoln's Pattern ..70@70&10%
Weed's ..20&10%
Boss, ℔ doz.:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10 ..60&10&10%

### Gauges—

Marking, Mortise, &c ..60&10%
Starrett's Surface, Center and Scratch. ..25&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge ..20&10%
Wire, Wheeler, Madden & Co. ..10%
Wire, Morse's ..25%
Wire, Brown & Sharpe's ..10@20%
Wire, P., S. & W. Co. ..10&10%

### Gimlets—

Nail and Spike ..50&10&5%
Eureka Gimlets ..40&10%
Diamond Gimlets ..℔ gr $5.00
Double Cut, Shepardson's ..45@45&5%
Double Cut, Ives' ..60@60&5%
Double Cut, Douglass' ..40&10%

### Glue—

Le Page's Liquid ..25@25&5%
Upton's Liquid ..35%
Improved Process ..25@25&5%
Dodd's Liquid Glue ..25@25&5%

### Glue Pots—See *Pots, Glue.*

### Grease, Axle—

Fraser's ..Keg ℔ 4¢, Pail ℔ 5¢
Fraser's, in boxes ..℔ gr $9.50
Dixon's Everlasting, in bxs. ..℔ doz 1 ℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting ..10-℔ pails, ea. 85¢
Lower grades, special brands, ℔ gr $5.50@$7.00

### Grindstones—

Small, less than car load lots at quarry ..℔ ton $9.00 @ $10.00
Family, regular list ..60%
Family, Cleveland Stone Co. ..20%

### Grindstone Fixtures—See *Fixtures, Grindstone.*

### Gun Powder—See *Powder.*

## Hack Saws—See *Saws.*

### Hafts, Awl—

Sewing, Brass Fer. ℔ gr $3.50 ..45&10%
Pat. Sewing, Short, $1.00 ℔ doz ..40&10%
Pat. Sewing, Long ..℔ doz $1.20
Pat. Peg, Plain Top. ℔ gr $10.00 ..45&10%
Pat. Peg, Leather Top. ℔ gr $12.00. 45&10%

### Halters—

Covert's, Rope, Jute.....60&10&10&2%
Covert's Rope, 7-16-in., Jute.....70&2%
Covert's Rope, ¾-in., Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse Ties.....70&2%
Covert's Jute Cattle Ties.....70&10&2%
Covert's Adj. Web Halters.....35&5&2%
E. Covert Mfg. Co.'s Halters.....33⅓%
E. Covert Mfg. Co.'s Horse and Cattle Ties.....33⅓%

### Hammers—

#### Handled Hammers—

Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co. / Humason & Beckley / Atha Tool Co. / Verree.....50@50&10%
C. Hammond & Son.....40&10@—%
Fayette R. Plumb.
Artisans' Choice, A. E. Nail.....40&10%
Regular Y. & P., A. E. Nail.....50%
Horseshoe Turning Hammers.....50%
Other Hammers.....50&10%
Cheney's Claw.....40&10%
Cheney's Machinist's & Riveting.....50&5%
Hartford, Nail Hammers.....40&5%
Hartford, Maceinists, &c.....50&5@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles, new list.....25&10
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%

#### Heavy Hammers and Sledges—

3 ℔ and under.....℔ @40¢ / 3 to 5 ℔.....℔ @36¢ / Over 5 ℔.....℔ @30¢ ) 70@70&10%
Wilkinson's Smiths.....10½@11¢℔ ℔

### Handcuffs and Leg Irons

—See *Police Goods.*

### Handles—

#### Cross-Cut Saw Handles—

Atkins' No. 1 Loop, ℔ pr., 28¢; No. 3, 18¢; No. 6, 15¢; No. 2 and No. 4, Reversible, 18¢.
Champion.....15%

#### Iron, Wrought or Cast—

Door or Thumb.

| Nos. | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Per doz. | $0.90 | 1.00 | 1.10 | 1.35 | 1.50 |

60&10&10%
Roggin's Latches.....℔ doz 30@@35¢
Bronze Iron Drop Latches..℔ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no plate, $0.88.....net
Barn Door, ℔ doz $1.40.....10&10%
Chest and Lifting.....70%

#### Wood—

Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, &c.....40@40&5%
Brad Awl.....℔ gr $2.00
Hickory Firmer Chisel, ass'd..℔ gr 4.50 / Hickory Firmer Chisel, large..℔ gr 5.00 / Apple Firmer Chisel, ass'd..℔ gr 5.00 / Apple Firmer Chisel, large..℔ gr 6.00 / Socket Firmer Chisel, ass'd..℔ gr 3.00 / Socket Framing Chisel, ass'd..℔ gr 5.00 ) 40&10&10@50%
J. B. Smith & Co.'s Pat File.....50%
File, assorted.....℔ gr 2.75
Auger, assorted.....℔ gr 5.00 / Auger, large.....℔ gr 7.00 ) .....50%
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass.....℔ set $1.25
Pat. Auger, Swan's.....℔ set $1.00
Hoe, Rake, Shovel, &c.....50&10%

### Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England..60&10&10@70%
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Steel Track.....55%
U. S. Wood Track.....65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Climax Anti-Friction.....55%
Climax Anti-Friction for Wood Track.55%
Zenith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling.....50@50&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....40&10@50%
Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ℔ doz pr. 4 in., $10.00; 5 in. $12.00.....50&10%
Terry's Steel Anti-Friction Leader.50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50&5%
Wood Track Iron Clad, ℔ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ℔ set $6.00.....20%
Eclipse.....20&10%
Felix, ℔ set $4.50.....20%
Richards'.....30@30&10%
Lane's New Standard.....50@50&5%
Lane's Standard.....50&5@50&10%
Lane's Parlor.....40%
Ball Bearing Door Hanger.20&10@25&10%
Warner's Pat.....20&10@20&10%
Stearns' Anti-Friction..20&10@20&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, per set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel, Cast Iron.....50%
Nickel, Malleable Iron and Steel.....40%
Scranton Anti-Friction Single Strap.33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00.....40&10%
Interstate.....50%
Magic.....45%
Pendulum, Payson's.....40%
Moody.....45%

### Harness Snaps—See *Snaps.*

### Hatchets—

American Axe and Tool Co. / Blood's / Hunt's / Hurd's / Mann's / Peck's / Underhill's / Buffalo Hammer Co. / Fayette R. Plumb / C. Hammond & Son / Kelly's / Sargent's & Co. / P., S. & W. Co. / Ten Eyck Edge Tool Co. / Collins.....40 & 10 @ 50&5%
Schulte, Lohoff & Co.....50@50&5%

### Hay and Straw Knives—

See *Knives.*

### Hinges—

#### Blind Hinges—

Parker.....75&2%
Huffer.....50%
Clark's, Nos. 1, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity.....50%
Sargent's, Nos. 1, 3, 5, 11, 13 55&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's.
Nolseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible....70&10&5@75%
Clark's, Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $0.00; No. 3, for Brick, $11.50.....10%

#### Gate Hinges—

Western.....℔ doz $4.40, 60%
N. E.....℔ doz $7.00, 55%
N. E. Reversible.....℔ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....℔ doz $5.00, 55&10%
Automatic.....℔ doz $12.50, 50%
Shepard's.....60&10&5%

#### Spring Hinges—

Geer's Spring and Blank Butts.....40%
Union Spring Hinge Co.'s list, March, 1886.....20%
Barker's Double Acting.....25%
Union Mfg. Co.....25%
Bommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Bardsley's Patent.....40%
Acme.....30%
U. S.....25&10%
Empire and Crown.....20%
Hero and Monarch.....55%
American, Gem and Star.....20%
Oxford.....20%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....60%
Reliable.....60%
Champion.....60%
Stearns'.....50&10%
Samson, ℔ gross.....$14.00
Extra 5 @ 10% often given.

#### Wrought Iron Hinges—

List February 14, 1891.

Strap and T.....50&10&5%
Corrugated Strap and T.....50@50&10%
Screw Hook and Strap... / 6 to 12 in., ℔ ℔.. 4¢ / 14 to 20 in., ℔ ℔..3½¢ / 22 to 36 in., ℔ ℔.. 3¢
Screw Hook and Eye.... / ½ in., ℔ ℔ 7¾¢ / ⅝ in., ℔ ℔ 5¾¢ / ¾ in., ℔ ℔ 4¾¢
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10¢
Plate Hinges "Providence" / 8, 10 & 12 in., ℔ ℔.....5¢ / over 12 in. ℔ ℔.....4¢

### Hoes—

#### Eye—

D. & H. Scovil.....20%
Lane's Crescent, Planters' Pattern.45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat / Am. Axe and Tool Co., S. & O. Pat..... / Chattanooga Tool Co., S. & O. Pat..60& 5&60&10%
Grub.....60&10%

#### Handled—

Garden, Mortar, &c.....70%
Planter's, Cotton, &c.....70%
Warren Hoe.....60%
Magic.....℔ doz $4.00

### Hog Rings and Ringers—

See *Rings and Ringers—*

### Hoisting Apparatus—

See *Machines, Hoisting.*

### Hollow-Ware—

See *Ware, Hollow.*

### Holders—

#### Bag—

Sprengle's Pat.....℔ doz $18....60%

#### Bit—

Extension.
Barber's, ℔ doz $15.00.....40@40&10%
Ives, ℔ doz $20.00.....60&5@60&10%
Diagonal.....℔ doz $24.00, 40%
Angular.....℔ doz $24.00, 40&5%

#### File and Tool—

Balz Pat.....℔ doz $4.00, 25%
Nicholson File Holders.....20%
Dick's Tool Holder.....20%

### Hooks—

#### Cast Iron—

Bird Cage, Sargent's List.... / Bird Cage, Reading..... / Clothes Line, Sargent's list. / Clothes Line, Reading list. 60&10@60&10&10%
Ceiling, Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading. 50&10@50&10&10%

#### Wrought Iron—

Cotton.....℔ doz $1.25
Cotton Pat. (N. Y. Mallet and Handle W'ks.....30%
Tassel and Picture, T. & S. Mfg.Co....50%
Wrought Staples, Hooks, &c. See Wrought Goods.

#### Wire—

Wire Coat and Hat, Gem, list April, 1886.....60@60&10
Wire Coat and Hat, Miles, list April, 1886.....50@50&10%
Indestructible Coat and Hat...45@45&5%
Wire Coat and Hat, Standard.60@60&10%
Handy Hat and Coat.....50&10@60%
Steady Ceiling Hooks.....50&10@60%
Belt.....80@80&10%
Atlas, Coat and Hat.....60@60&10%
Williamson's Bird Cage Hooks, List April, 1892.....40%
Bright Wire Goods—See Wire.

#### Miscellaneous—

Grass,No.2, $2.00; No.3, $2.25; No. 4, $2.50
Nolin's Grass.....℔ doz $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks—See Bench Stops.

### Horse Nails—See *Nails, Horse.*

### Horse Shoes—

See *Shoes, Horse.*

### Hose, Rubber—

Competition.....75@75&10&5%
Standard.....60&10&10@70&10%
Extra.....60@60&10%
N. Y. B. & P. Co., Para.....25&5%
N. Y. B. & P. Co., Extra.....40@40&5%
N. Y. B. & P. Co., Dundee.....50&10@60%

### Huskers—

Blair's Adjustable.....℔ gr $8.00
Blair's Adjustable Clipper. ....℔ gr 7.00
Hubbard's Solid Steel.....℔ gr 4.50

### Indurated Fiber Ware—

See *Ware, Indurated Fiber.*

### Irons.

#### Sad—

From 4 to 10, at factory....℔ 100 ℔, $2.30@$2.40
Self-Heating.....℔ doz $0.00
Self-Heating, Tailors'.....℔ doz $18.00
Mrs. Pott's Irons.....60@60&10%
Enterprise Star Irons.....60@60&10%
XX Cold Handle Sad Iron.....60@60&10%
Ideal Irons, new list...50&10@50&10&10%
Salamander Irons.....25%
B. B. Sad Irons, ℔ ℔.....36@3¾¢
Combined Fluter and Sad Iron, ℔ doz, $15.00.....15%
Fox Reversible Self-Fluter, ℔ doz..$24.00
Chinese Laundry (N.E.Butt Co.).8½¢, 15%
New England.....5¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible, list Jan. 91.....50&10&5%
Sensible Tailor's Irons.....33⅓%
National Self-Heating.....30%

#### Soldering—

Soldering Coppers.....℔ ℔ 19@21¢
Covert's Adjustable, list Jan. 1, 1886, 35&2%

#### Pinking—

Pinking Irons, ℔ doz., 65¢.

### Jack Screws—See *Screws.*

### Jacks, Wagon—

Daisy.....33⅓%
Victor.....33⅓%
Lockport.....40%

### Kettles—

Brass, Spun, Plain, list Jan. 1, '91..25&5%
Brass, Spun, Pld.W.M.list Jan. 1, '91..20%
Enameled and Tea—See *Ware, Hollow.*

### Keys—

Lock, Ass'n list Dec. 30, 1886.50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss' Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....℔ doz. $4.00, 15%
Wollensak Tinned.....50&10%

### Knife Sharpeners—

See *Sharpeners, Knife.*

### Knives—

#### Butcher, Shoe, &c.

Wilson's Butcher Knives, List Dec. 8, 1890.....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Jordan's AA A1 Butchers', list.....net
Nichols' Butcher Knives.....40&10%
W. W. Wilson, Butcher, 6 in.. $2.00; 7 in., $2.70; 8 in., $3.80, &c.
Ames' Shoe Knives.....20@25%
Ames' Bread Knives, ℔ doz $1.50, 15@20%
Moran's Shoe and Bread.....20%
Hay and Straw—See Hay Knives.
Table and Pocket—See Cutlery.

#### Corn—

Auburn Mfg. Co. Western Pat.....$2.00
Auburn Mfg. Co. Crescent.....$3.50
Bradley's.....10%
Wadsworth's.....25%

#### Drawing—

Witherby..... / P., S. & W..... / Mix..... / New Haven..... .75 @ 75 & 10%
Merrill.....60 & 10 @ 60 & 10 & 5%
Dougass.....75 & 75 @ 5%
Watrous.....15 & 10 @ 25%
L. & I. J. White.....20 & 5%
Bradley's.....35%
Adjustable Handle.....25 @ 33⅓%
Wilkinson's Folding.....25 @ 25 & 5%

### Hay and Straw—

Lightning, from jobbers....$8.00 @ $9.00
Wadsworth's.....40 & 7½ @ 40 & 10%
Carter's Needle.....℔ doz. $11.00 @ $11.50
Heath's.....℔ doz. $13.00 @ $13.50
Auburn Hay, Com. and Spear Point..50%
Auburn Straw.....40%
Nolin's Hay.....℔ doz. $7.00 @ $8.00%

### Mincing—

Am. (2d quality), ℔ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20 & 10%
Smith's, ℔ doz., Single, $2; Double $3 40 @ 45%
Knapp & Cowles.....50 & 10 @ 60%
Buffalo Adjustable.....℔ doz. $3.00, 25%
Buffalo Double Adjustable.. ℔ doz. $3.00, 25%

### Knobs—

Door, Mineral.....60@65%
Door, Por. Jap'd.....70@75%
Door, Por. Nickel.....$2.00@$2.25
Door, Por. Plated Nicke..l....$2.00@$2.25
Drawer, Porcelain....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&10
Carriage, Jap.....℔ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c...40%

### Ladies—

Melting, Sargents'.....55&10%
Melting, Reading.....35&10%
Melting, Monroe's Pat...℔ doz $4.00, 40%
Melting, P., S. & W.....35&10@40%
Melting, Warner's.....30%

### Lanterns—

#### Tubular—

Regular, with Guard.....℔ doz $3.50
O. K., with Guard.....℔ doz $3.75
Side Lift, with Guard.....℔ doz $4.00
Square Lift, with Guard.....℔ doz $4.25
Anti-Friction, with Guard....℔ doz $4.50
Brass Plated, Sq. Lift, Guard.℔ doz $5.50
Cop. Plated, Sq. Lift, Guard..℔ doz $5.50

#### Police Lanterns—

2¾-inch Bull's-eye Police regular..... ℔ doz $3.60
3-inch Bull's-eye Police regular..... ℔ doz $3.90
2¾-inch Bull's-eye Police flash light..... ℔ doz $4.00
3-inch Bull's-eye Police flash light..... ℔ doz $4.50

### Lawn Mowers—

See *Mowers, Lawn.*

### Leaders, Cattle—

Humason, Beckley & Co.'s.....70%
Sargent's.....60%&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

### Lemon Squeezers—

See *Squeezers, Lemon.*

### Lifters, Transom—

Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reiher's, list Feb. 20, 1891.
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's:
Universal.....60%
Solid Grip.....60&10%
Imperial.....50&10%

### Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's and Tate's Chalk.....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ℔ gro.....25%
Mason's Linen, No. 2½, $1.50; No. 4, $2.00; No 4½, $2.50.
Mason's Colored Cotton.....45%

| Wire Clothes..Nos. | 18 | 19 | 20 |
|---|---|---|---|
| 100 ft. | $3.50 | $3.00 | $2.50 |

Ventilator Cord, Samson Braided, White or Drab Cotton..℔ doz $7.50..20%

### Links, Open—

Terry's—per gro.:

| Nos. | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | $6.00 | 8.00 | 12.00 | 16.00 |

### Locks, &c.—

#### Cabinet—

Eagle, Gaylord Par- / ker and Corbin... / Deitz, Nos. 36 to 39..... / Deitz, Nos. 51 to 63..... / Deitz, Nos. 86 to 96..... / Stoddard Lock Co..... / "Champion" Night Latches..... / Barnes Mfg. Co..... / Eagle and Corbin Trunk..... / "Champion" Cab. and Combin..... / Yale..... / Romer's..... List March, '84, rev. Jan. 1, '85.33⅓&2% .....40% .....40&10% .....30% .....30@33⅓% .....40% .....40@40&10% .....25&2% .....33⅓% .....net prices .....25%

#### Door, Locks, Latches, &c.—

R. & E. Mfg. Co., list Mar.20, 1880..... / Malkry, Wheeler & Co., list July, '88..... / Sargent & Co., List Aug.1,'88 / Reading Hardware Co., list Feb. 2, '88..... / Branford Lock Works..... 65&10@70% Much lower net prices often made.

Brittan, Graham & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deitz Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Brooklyn Latches.....50&10%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....25%

### Padlocks–

List June 10, 1891.....50&2%
Norwich Lock Mfg. Co., old list.....70&2%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....25&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 505.....15%
A. E. Deitz.....40%
Champion Padlocks.....40%
Hotchkiss.....30%
Star.....60%
Horseshoe.....₱ doz $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandinavian, Nos. 119, 120, 130 and 140.....90&10%
Other Nos.....65
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker, Barry & Co.
No. 1010 line.....85&5%
No. 41 line.....45&10%
No. 61 line.....50&5%
No. 21 line.....75%

### Sash, &c.–

Clark's No. 1, $10; No. 2, $8 ₱ gr.....33⅓%
Ferguson's.....33⅓%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....25&33⅓%
Reading.....60%&10@60%&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'zed.....₱ gr $4.00
Common Sense, Nickel Plated.....₱ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....25&5&2%
Stoddard's "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Fish (Lieseche's pat.), No. 100, ₱ gr., $8; No. 105, ₱ gr., $10.....40%
Davis, Bronze, Barnes Mfg. Co.....50%
Champion Safety, list January, 1889..70%
Security.....70%
Giant, list Jan., 1892.....70&5%
Wolcott's.....60&10&5%
Monarch.....50%

### Lumber Tools–

See *Tools, Lumber.*

### Lustro–

Four-ounce bottles.....₱ doz, $1.75; ₱ gross.....$17.00

## Machines.

### Boring–

| Without Augers. | Upright. | Angular. | |
|---|---|---|---|
| Douglas | $5.50 | $6.75 | 50% |
| Snell's, Rice's Pat.. | 5.50 | 6.75 | 40&10&10% |
| Jennings' | 5.50 | 6.75 | 45@45&10% |
| Other Machines.. | 2.35 | 2.75 | |
| Phillips' Patent with Augur | 7.00 | 7.50 | |
| Miller's Falls | 7.50 | | 25% |

### Fluting–

Knox, 4¼-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3¼-inch Rolls, $2.15.....35%
Eagle, 5¼-inch Rolls, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel, 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal, ₱ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; 2, $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85, per doz $15.30.....40%
Shepard Hand Fluter, No. 110, ₱ doz $11.00.....40%
Shepard Hand Fluter, No. 95, ₱ doz $8.00.....40%
Clark's Hand Fluter, ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00.....30%
Buffalo, ₱ doz $10.00.....10%

### Hoisting–

Moore's Hand Hoist, with Lock Brake.20%
Moore's Differential Pulley Block.....40%
Energy's Mfg. Co.'s.....25%
Sure Grip Steel Tackle Blocks.....25%

### Washing–

Anthony Wayne, ₱ doz, No. 1, $51; No. 2, $45; No. 3, $42.
Western Star, ₱ doz, No. 2, $45; No. 2 $48.
Weisell.....₱ doz $54.00
Fair and Square.....₱ doz $42.00

### Mallets–

Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

### Mattocks–Regular list. 60&10@60&10&5%

### Measures–

Standard Fiberware, No. 1, peck ₱ dozen, $4; ½-peck, $3.50.

### Meat Cutters–

See *Cutters, Meat.*

### Menders, Harness–

Per doz.....$2.00

### Mills–

#### Coffee–

Box and Side, List Jan. 1, 1888, 60@60&10% Net prices are often made which are lower than above discount.
American, Enterprise Mfg. Co. 20&10@30%
The Swift, Lane Bros.....20&10%

### Mincing Knives–

See *Knives, Mincing.*

### Molasses Gates–

See *Gates, Molasses.*

### Money Drawers–

See *Drawers, Money.*

### Mowers, Lawn–

Philadelphia.....60&10%
Pennsylvania and Continental.....60%
New Model and Excelsior.....60@60&10%
Other Machines.....60&10&10@75%

### Muzzles–

Safety.....₱ doz, $3.00, 25%

## Nails.–

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, Apr. 11, '92..80&10&10%
Tack Mfrs.' list.....70@70&10%
Wire Nails, Standard Penny.
Card June 1, '89 base.....$1.85@$1.90

### Horse–

| | Nos. 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|
| American | 83¾ | 83¾ | 83¾ | 83¾ | 83¾ | net |
| Ausable | 28¢ | 26¢ | 25¢ | 24¢ | 23¢ 40&5&5% | |
| Clinton, Fin. | 19¢ | 17¢ | 16¢ | 15¢ | 14¢ | .30&10% |
| Essex | 28¢ | 26¢ | 25¢ | 24¢ | 23¢ 40&10&5&2% | |
| Lyra | 19¢ | 17¢ | 16¢ | 15¢ | 14¢ | .40&5% |
| Snowden | 19¢ | 17¢ | 16¢ | 15¢ | 14¢ | .40&5% |
| Vulcan | 23¢ | 21¢ | 20¢ | 19¢ | 18¢ | .25% |
| Northwest'n. | 25¢ | 23¢ | 22¢ | 21¢ | 20¢ 25@25&5% | |
| A. C. | 25¢ | 23¢ | 22¢ | 21¢ | 21¢ 25&10@33⅓&5% | |
| C. B. K. | 25¢ | 23¢ | 22¢ | 21¢ | 21¢ 25&10@33⅓&5% | |
| Maud S. | 25¢ | 23¢ | 22¢ | 21¢ | 21¢ 40&10&5% | |
| Champlain | 28¢ | 26¢ | 25¢ | 24¢ | 23¢ 40&5&5&2% | |
| Saranac | 23¢ | 21¢ | 20¢ | 19¢ | 18¢ | .40&5% |
| Champion | 25¢ | 23¢ | 22¢ | 21¢ | 20¢ 10&10&10% | |
| Capewell | 19¢ | 18¢ | 17¢ | 16¢ | 16¢ | .10% |
| Anchor | 23¢ | 21¢ | 20¢ | 19¢ | 18¢ | .35% |
| Western | 23¢ | 21¢ | 20¢ | 19¢ | 18¢ | .50% |
| Empire Bronzed | | | | | | .14 ₱ ℔ |

### Picture–

Brass Head, Sargent's list.....50&10&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list.50&10&10%
Porcelain Head, Combination list.40&10%
Niles' Patent.....40%

### Nail Pullers–See *Pullers, Nail.*

### Nail Sets–See *Sets, Nail.*

### Nut Crackers–

See *Crackers, Nut.*

### Nuts–List Dec. 18, 1889.

| | Square. | Hex. |
|---|---|---|
| Hot Pressed | 5.35¢ | 5.95¢ off list |
| Cold Punched | 5.00¢ | 5.10¢ off list |

In packages of 100 ℔, add 1-10¢ ₱ ℔ net; in packages less than 100 ℔, add ½¢ ₱ ℔, net.

## Oakum–

Best or Government.....₱ ℔ 6¾@7¼¢
U. S. Navy.....₱ ℔ 5¾@6¢
Navy.....₱ ℔ 5¢@5¼¢

### Oilers–

Zinc and Tin.....65&10@70&5%
Brass and Copper.....50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.40; No. 3, $4.40 ₱ doz. 10@10&5%
Malleable, Hammers' Old Pattern, same list.....40%
Prior's Pat. or "Paragon" Zinc. 60&10&10%
Prior's Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper.....50%
Broughton's Zinc.....60%
Broughton's Brass.....50%
Gem, P., D. & Co.....₱ gro. $2
Steel, Draper & Williams.....50%

### Openers, Can–

Messenger's Comet.....₱ doz $3.00, 25%
American.....₱ gross $2.75@$3.00
Duplex.....₱ doz 25¢, 15@20%
Lyman's.....₱ doz $3.75, 20%
No. 4, French.....₱ doz $2.25, 55@60%
No. 5, Iron Handle.....₱ gr $6.00, 45@50%
Eureka.....₱ doz $2.50, 10%
Sardine Scissors.....₱ doz $2.75@3.00
Star.....₱ doz $2.75
Sprague, No. 1, $2.00; 2, $2.25; 3, $2.50; 50&10&10%
Excelsior, No. 1 $2.50; No. 2, $1.50.....40%
World's Best, ₱ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₱ doz $3.00.....55&5%
Domestic, ₱ doz $2.00.....45%
Champion, ₱ doz $2.00.....50%

## Packing, Steam–

### Rubber–

Standard.....70@70&10%
Extra.....60@60&5%
N. Y. B. & P. Co., Standard.....50%
N. Y. B. & P. Co., Empire.....60%
N. Y. B. & P. Co., Salamander.....25%
Jenkins' Standard, ₱ ℔ 80¢.....25@25&5%

### Miscellaneous–

American Packing.....10@11¢ ₱ ℔
Russia Packing.....14¢ ₱ ℔
Italian Packing.....13@14¢ ₱ ℔
Cotton Packing.....15@17¢ ₱ ℔
Jute.....7¢@8¢ ₱ ℔

### Pails–

#### Galvanized–

| | Quarts | 10 | 12 | 14 |
|---|---|---|---|---|
| Hill's Light Weight, ₱ doz. | | $2.75 | 3.00 | 3.25 |
| Hill's Heavy Weight, ₱ dz. | | 3.00 | 3.25 | 3.75 |
| Helwig's | | 2.50 | 2.75 | 3.00 |
| Sidney Shepard & Co. | | 2.35 | 2.85 | 3.05 |
| Iron Clad | | 2.50 | 2.75 | 3.00 |
| Fire Buckets | | 2.75 | 3.25 | 3.50 |

Buckets–See Well Buckets.

#### Indurated Fiber Ware–25%

| | |
|---|---|
| Star Pails, 12 qt. | ₱ doz $5.40 |
| Stable and Milk, 14 bt. | ₱ doz $6.00 |
| Fire Pails, deep | ₱ doz $5.40 |
| Fire Pails, round bottom | ₱ doz $7.80 |

#### Standard Fiber Ware–

| | Plain. | Decr'd |
|---|---|---|
| Water Pails, 12 qt., ₱ doz. | $4.00 | $4.50 |
| Dairy Pails, 14 qt., ₱ doz. | 4.50 | 5.00 |
| Fire Pails, No. 1, 12 qt., ₱ doz | 4.50 | |
| Fire Pails, No. 2, 14 qt., ₱ doz | 5.00 | |
| Sugar Pails | 6.00 | 6.50 |
| Horse Pails | 5.00 | |
| Buggy Pails | 4.00 | |
| Slop Jars (bal. trap) | 8.00 | 9.00 |
| Chamber Pails, 14 qt. | 6.50 | 7.50 |

### Pans–

#### Dripping–

Small sizes.....₱ ℔ 6¼¢
Large sizes.....₱ ℔ 5¾¢
Silver & Co. (Covered).....40%

#### Fry–

| Standard List: No. | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| ₱ doz. | $3.00 | $3.75 | $4.25 | $4.75 | $5.25 |
| No. | 5 | 6 | 7 | 8 | |
| ₱ doz. | $6.00 | $7.00 | $8.00 | $9.00 | |

Polished, regular goods.....75@75&10%
Acme Fry Pans.....60&10%

#### Dust–

Steel Edge, No. 1.....₱ doz $1.75

### Paper and Cloth–

#### Sand and Emery–

List April 19, 1886.....50&10&50&10&5%
Sibley's Emery and Crocus Cloth.....30%

### Parers–

#### Apple–

Advance.....₱ doz $4.75
Baldwin.....₱ doz 5.25
Bonanza.....each 5.50
Daisy.....₱ doz 4.00
Dandy.....each 7.50
Eclipse.....₱ doz 4.25
Eureka, 1888.....each 16.00
Family Bay State.....₱ doz 12.00
Favorite.....₱ doz 5.00
Gold Medal.....₱ doz 4.00
Ideal.....₱ doz 4.00
Improved Bay State.....₱ doz 27.00@30.00
Little Star.....₱ doz 4.50
Monarch.....₱ doz 13.50
New Lightning.....₱ doz 5.50
Oriole.....₱ doz 4.00
Penn.....₱ doz 4.00
Perfection.....₱ doz 4.00
Pomona.....₱ doz 4.00
Rocking Table.....₱ doz 6.00
Turn Table.....₱ doz 4.50
Victor.....₱ doz 13.50
Waverly.....₱ doz 4.00
White Mountain.....₱ doz 4.00
72.....₱ doz 4.25
78.....₱ doz 7.00

#### Potato–

White Mountain.....₱ doz $4.50
Antrim Combination.....₱ doz $5.50
Hoosier.....₱ doz $13.50
Saratoga.....₱ doz $5.50

### Pencils–

Faber's Carpenters'.....high list 50%
Faber's Round Gilt.....₱ gro $5.25
Dixon's Lead.....₱ gro $4.50
Dixon's Lumber.....₱ gro $6.75
Dixon's Carpenters'.....10%

### Picks–

Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10&60&10&5%

### Picture Nails–

See *Nails, Picture.*

### Pinking Irons–

See *Irons, Pinking.*

### Pins–

#### Bow–

Humason, Beckley & Co.'s.....60&10%
Sargent & Co.'s, #17 and #18.....60&10%
Peck, Stow & W. Co.....50&10&50&10&5%

#### Curtain–

Silvered Glass.....net
White Enamel.....net

#### Escutcheon–

Iron, list Nov. 11, 1885..50&10&50&10&5%
Brass.....60@60&5%

### Pipe, Wrought Iron–

List July 21, 1892.

1¼ and under, Plain.....60&5@60&10%
1¼ and under, Galvanized..50&5@50&10%
1¼ and over, Plain.....70&5@70&10%
1¼ and over, Galvanized...60&5@60&10%
Boiler Tubes,
Sizes up to 2¾ in., inclusive..57½@60%
Sizes 3 in. and larger.....60@65%
Casing.....55%
Inserted Joints Casing.....50%
Steel Boiler Tubes.....30%

### Planes and Plane Irons–

#### Wood Planes–

Molding.....40&10@40&10&10%
Bench, First quality..50&10@50&10&10%
Bench, Second quality.55&10@55&10&10%
Bailey's (Stanley R. & L. Co.).....50&10%

#### Iron Planes–

Bailey's (Stanley R. & L. Co.).....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10%
Steers' Iron Planes.....35@35&10%
Meriden Mal. Iron Co.'s.....40@40&10%
Davis' Iron Planes.....40@40&10%
Birmingham Plane Co.....50@50&10%
Gage Tool Co.'s Self-Setting...20&10&10%
Chaplin's Iron Planes.....40@40&10%
Sargent's.....30&10@30&10&10%
Standard Tool Co.....50@50&5%

#### Plane Irons–

Butcher's.....$5.00@$5.25 to £
Buck Bros.....30%
Auburn Thistle.....} .30&10%
Ohio.....}
Sandusky.....}
L. & I. J. White.....25
Stanley R. & L. Co.....50&10%

### Plates–

Felloe.....₱ ℔ 6¢@6¼¢

### Pliers and Nippers–

Button's Patent.....50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ₱ doz.....40%
Humason & Beckley Mfg. Co..50@50&10%
Lindsay's Giant.....33⅓%
Gas Pliers.....60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers.....40%
Russell's Parallel.....25%
P., S. & W. Cast Steel.....50%
P., S. & W. Tinners' Cutting Nippers, add 6%.....10%
Carew's Pat. Wire Cutters.....20%
Morrill's Parallel, ₱ doz, $12.00.....30&5%
Cronk's 8 in., $15.00; 10 in., $21.00..... 50@50&5%
Cronk's Button Pattern.....50&10@60%
Cronk's Carrier Pliers.....60@60&5%

### Plumbs and Levels–

Regular List.....75&10@75&10&5%
Stanley's Duplex.....20&10%
Stanley's Handy.....20&10%
Disston's.....50%
Pocket Levels.....70&10@70&10&10%
Davis Iron Levels.....30%
Davis' Inclinometers.....10&10%

### Poachers, Egg–

Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00.....25%
Silver & Co., 6-Ring, ₱ doz, $4.00; 3-Ring.....$2.00

### Pokes, Animal–

Bishop's I. X. L.....₱ doz $6.00
Bishop's O. K.....₱ doz $5.25
Bishop's Pioneer.....₱ doz $3.75
Bishop's American.....₱ doz $2.75
Eagle, Double Stale.....₱ doz $5.75
Eagle, Single Stale.....₱ doz $3.75
Buckeye, Single Stale.....₱ doz $2.75
Bolding.....₱ doz $6.00

### Police Goods–

R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs; 2 Hands, Polished, ₱ doz, $48.00; Nickeled, $57.00; 3 hands, Polished, ₱ doz, $72.00; Nickeled, $84.00.....25%
J. P. Lovell's Police Goods.....25%

### Polish–

#### Metal–

Prestoline.....30%
Prestoline Paste.....33⅓%
Gaston's Silver Compound.....33⅓%

#### Stove–

Joseph Dixon's.....₱ gro, $6.00, 10%
Gem.....₱ gro, $4.50, 10%
Gold Medal.....₱ gro, $6.00, 25%
Lustro.....₱ gro, $4.75
Ruby.....₱ gro, $3.75
Rising Sun, 5 gro lots.....₱ gro $5.50
Dixon's Plumbago.....₱ ℔ 8¢
Boynton's Noon Day.....₱ gro $13.00
Parlor Pride Stove Enamel, ₱ gro
Yates' Liquid, 2 gal ₱ gal...$0.80 3 .70 5 .60 10 gal .50
Yates Standard Paste Polish, 10 ℔ cans, ₱ ℔ 12½¢
Jet Black.....₱ gro $3.50
Japanese.....₱ gro $3.50
Fireside.....₱ gro $2.50
Diamond O. K. Enamel.....₱ gro $10.00
Bonnell's Liquid Stove Polish, ₱ gro $9.00
Bonnell's Paste Stove Polish, ₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans.....12½¢
Black Jack Water Paste, 5 and 10 ℔ cans.....12½¢
Nickel Plate Paste.....₱ gro $6.00
Crown Paste.....₱ gro $7.20
Crown Paste in 5 and 10 ℔ pails, ₱ ℔ 12¢
Black Flag.....₱ gro $7.20
Black Flag, 5 and 10 ℔ pails.....₱ ℔ 12¢
Black Flag, liquid, in bottles, ₱ gro $8.00
Diamond Rock Nickel Cleaner.....₱ gro $10.20
Raven Paste:
5-lb. pails, (per case of 6 or 12), ₱ ℔ 12¢
Less than case.....₱ ℔ 15¢
Liquid, 6 oz. bottles.....₱ gross, $8.00
Liquid, 8 oz. bottles.....₱ gross, $9.00
Water Polish.....₱ gross, $5.85

### Poppers, Corn–

Round or Square, 1 qt..₱ gr $10.00@10.50
Round or Square, 1½ qt..₱ gr $15@$15.50
Round or Square, 2 qt..₱ gr $18.50@19.00

### Post Hole and Tree Augers and Diggers–

See *Diggers, Post Hole, &c.*

### Potato Parers–

See *Parers, Potato.*

### Pots–

#### Glue–

Tinned.....40&10@40&10&5%
Enameled.....40&10@40&10&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%

### Powder–

#### In Canisters–

| | |
|---|---|
| Fine Sporting, 1 ℔ each | $0.90 |
| Duck, 1 ℔ each | .60 |
| Rifle, 1 ℔ each | .30 |
| Rifle, ½ ℔ each | .18 |
| Rifle, ¼ ℔ each | .13 |

#### In Kegs–

| | |
|---|---|
| Rifle, 25-℔ kegs | $5.00 |
| Rifle, 12½-℔ kegs | 2.75 |
| Rifle, 6¼-℔ kegs | 1.50 |
| Duck, 12½-℔ kegs | 5.75 |
| Duck, 6¼ ℔ kegs | 3.00 |
| Trap, 25-℔ kegs | 6.00 |
| Trap, 12½-℔ kegs | 3.25 |
| Trap, 6¼-℔ kegs | 1.75 |

## Presses—

### Fruit and Jelly—

Enterprise Mfg. Co.....20&10@30%
Henis.....℔ doz $3.50
Shepard's Queen City.....40%
Silver & Co.....℔ doz $2.75

## Pruning Hooks and Shears—See *Shears.*

## Pullers, Nail—

Scranton.....℔ doz., $18.00, 33⅓%
Curtis Hammer.....℔ doz., $9.00
Giant, No. 1.....℔ doz., $18.00, 10%
Giant, No. 2.....℔ doz., $15.00, 10%
Pelican.....℔ doz., $9.00, 25%
Eclipse.....Each, $2.00, net
Economy.....℔ doz., $6.00

## Pulleys—

Hot House, Awning, &c.....60&10%
Japanned Screw.....60&10%
Brass Screw.....60&10%
Japanned Side.....60%&10%
Japanned Clothes Line.....60&10%
Empire Sash Pulley.....55@60%
Moore's Sash, Anti-Friction.....50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50.....50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. solid, $5.70.....50%
Hay Fork, "P" Common and Patent Bushed.....20%
Hay Fork, Tarbox Pat. Iron.....20%
Hay Fork, Reed's Self-Lubricating....60%
Shade Rack.....45%
Tackle Blocks—See Blocks.
Moore's Anti-Friction 5 in. Wheel, ℔ doz., $12.00.....40%

## Pumps—

Cistern, Best Makers.....60@60&10%
Pitcher Spout, Best Makers.....67½@70%
Pitcher Spout, Cheaper G'ds..75@75&10%

## Punches—

Saddler's or Drive, good..℔ doz., 60@65%
Bemis & Call Co.'s Cast Steel Drive.50&5%
Bemis & Call Co.'s Springfield Socket...50&5%
Spring, good quality..℔ doz., $2.50@2.60
Spring, Leach's Pat .....15%
Bemis & Call Co.'s Spring and Check..40%
Solid Tinners', P., S. & W. Co., ℔ doz., $1.44.....55%
Tinners' Hollow Punches, P., S. & W. Co.....20&2%
Rice Hand Punches.....15%
Avery's Revolving.....40%
Avery's Sawset and Punch—See Sawsets.

## Rail—

Sliding Door, Wr't Brass....℔ ft., 35¢, 15%
Sliding Door, Bronzed Wr't Iron..℔ ft., 7¢
Sliding Door, Iron, Painted..℔ ft., 4¢, 40%
Barn Door, Light..In. ⅜ ½ ¾
Per 100 feet.....$2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—
Small. Med. Large.
Per 100 feet.....$3.15 2.70 3.25 Net
Terry's Steel Rail.....℔ ft., 4½¢
Victor Track Rail, 7¢ ℔ foot.....50&2%
Carrier, double braced, Steel Rail, ℔ foot.....4@4½¢
Moore's Wrought Iron.....25%
Moody Steel Rail.....45%

## Rakes—

Cast Steel, Association goods....66⅔@70%
Cast Steel, outside g'ds,..60&10&10@70&5%
Malleable.....70&@70&5%
Gibbs Lawn Rake.....℔ doz., $4.00
Canton Lawn Rake.....℔ doz., $3.75
Favorite Lawn Rake.....℔ doz., $4.40
Fort Madison Prize Bow Brace and Peerless.....65%
Fort Madison Steel Tooth Lawn Rake, $6.00.....25%

## Razors—

J. R. Torrey Razor Co.....20%
Wostenholm and Butcher, $10 to £.....10%
Jordan's AAA1, new list.....Net
Jordan's Old Faithful, new list.....Net
Galvanic.....℔ doz., $15.00
Electric Cutlery Co.....Net

## Razor Strops—See *Strops, Razor.*

## Rings and Ringers—

### Bull Rings—

Union Nut Co.....55%
Sargent's.....66⅔&10@70&5%
Hotchkiss' low list.....30%
Hunnason, Beckley & Co.'s.....70&10%
Peck, Stow & W. Co.'s..50&10@50&10%
Ellrich Hdw. Co., White Metal, low list.50@50&10%

### Hog—

Top of the Hill Ringers.....℔ doz $2.00
Top of the Hill Rings.....℔ doz $1.25
Hill's Improved Ringers.....℔ doz $1.25
Hill's Old Style Ringers.....℔ doz $1.12½
Hill's Tongs.....℔ doz $3.00
Hill's Rings.....℔ doz bxs $1.00
Perfect Rings.....℔ doz bxs $1.50
Perfect Ringers.....℔ doz $2.15@$2.25
Blair's Hog Ringers.....℔ doz $2.00
Blair's Hog Rings.....℔ doz 90¢@$1.00
Champion Ringers.....℔ doz $2.00
Champion Rings, Double.....℔ doz $2.25
Brown's Ringers.....℔ doz $2.00
Brown's Rings.....℔ doz $1.15@$1.25
Electric Hog Rings.....℔ doz boxes $1.50
Electric Hog Ringers.....℔ doz $2.00
Major Rings.....℔ doz $1.25
Major Ringers.....℔ doz $2.00

## Rivets and Burrs—

Iron, list Nov. 17, '87.....40%
Copper.....60&10%
Coppered Iron, Bettina Brand.....40%

## Rivet Sets—See *Sets.*

## Rods—

Stair, Brass.....25&2%
Stair, Black Walnut.....℔ doz 40¢

## Rollers—

Barn Door, Sargent's list.....60&10&10%
Acme Moore's Anti-Friction.....55%
Union Barn Door Roller.....70%
Thompson Mfg. Co.'s Lawn Rollers...30%

## Rope—

Manila, 7-16 in. diam. and larger ℔ ℔ 12¼¢
Manila.....⅜ in. ℔ ℔ 12¾¢
Manila.....¼ and 5-16 in. ℔ ℔ 13¼¢
Manila, Tarred Rope.....℔ ℔ 11¾¢
Manila, Hay Rope.....℔ ℔ 12¼¢
Sisal.....7-16 inch and larger ℔ ℔ 10¼¢
Sisal.....⅜ in. ℔ ℔ 10¾¢
Sisal.....¼ and 5-16 in. ℔ ℔ 11¼¢
Sisal, Hay Rope.....℔ ℔ 10¼¢
Sisal, Tarred Rope.....℔ ℔ 9¾¢
Sisal, Medium Lath Yarn.....℔ ℔ 9¾¢
New Zealand..7-16 in. & larger ℔ ℔ 8¾¢
New Zealand.....⅜ inch, ℔ ℔ 9¼¢
New Zealand..¼ and 5-16 inch, ℔ ℔ 9¾¢
New Zealand, Hay Rope.....℔ ℔ 8¾¢
New Zealand, Tarred Rope....℔ ℔ 8¼¢
*Note.*—Manufacturers' prices on above 1¢ ℔ ℔ less, f.o.b. factory—less 1½ % for cash.
Cotton Rope.....℔ ℔ 13½@16¢
Jute Rope.....℔ ℔ 6½@7¢

## Wire—

List February, 1892.
All kinds.....45%

## Rules—

Boxwood.....80&10&10%
Ivory.....50&50&10%
Starrett's Rules and Straight Edges, Steel.....25&10%

## Sad Irons—See *Irons, Sad.*

## Sand and Emery Paper and Cloth—See *Paper and Cloth.*

## Sash Cord—See *Cord, Sash.*

## Sash Locks—See *Locks, Sash.*

## Sash Weights—See *Weights, Sash.*

## Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage.*

## Saws—The following prices are often cut by jobbers.

Disston's Circular.....45@45&5%
Disston's Cross Cut.....45@45&5%
Disston's Hand.....25%
Woodrough & McParlin.
Hand, Panel and Rip.....30@30&5%
Narrow Champion Cross Cuts with Handles, ℔ foot.....18@20¢
Champion Thin Back Cross Cuts, ℔ foot.....26@28¢
Champion Extra Thin Back Cross Cuts, ℔ foot.....29@31¢
One Man Champion Cross Cuts, ℔ foot.....37@40¢
Wheeler, Madden & Clemson Mfg. Co. Hand, Panel and Rip.....35@35&5%
Narrow Champion Cross Cuts with Handles, ℔ foot.....18@20¢
Champion Thin Back Cross Cuts, ℔ foot.....26@28¢
Champion Extra Thin Back Cross Cuts, ℔ foot.....29@31¢
One Man Champion Cross Cuts, ℔ ft.. 37@39¢
Atkins' Circular Shingle & Heading..50%
Atkins' Silver Steel Diamond X Cuts ℔ foot 70¢
Atkins' Special Steel Dexter X Cuts ℔ foot 50¢
Atkins' Special Steel Diamond X Cuts ℔ foot 32¢
Atkins' Champion and Electric Tooth X cuts.....℔ foot 30¢
Atkins' Hollow Back X Cuts....℔ foot 20¢
Atkins' Mulay, Mill and Drag.....40%
Atkins' One-Man Saw, with handles, ℔ foot 40¢
Peace Circular and Mill.....45@45&5%
Peace Hand Panel and Rip.....25@25&5%
Peace Cross Cuts.....45@45&5%
Richardson's Circular and Mill.45@45&5%
Richardson's X Cuts.....45@45&5%
Richardson's Hand, &c.....25@25&5%
C. E. Jennings & Co. Hand, Panel and Rip.....25@25&10%

## Hack Saws—

Griffin's, complete.....40&10@50
Griffin's Hack Saw Blades.....40&10@50
Star Hack Saws and Blades.....25%
Eureka and Crescent.....25%

## Scroll—

Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cab Makers' $15.25%
Barnes' Scroll Saw Blades.....35%

## Saw Frames—See *Frames, Saw.*

## Saw Sets—See *Sets, Saw.*

## Saw Tools—See *Tools, Saw.*

## Scales—

Hatch, Counter, No. 171, good quality, ℔ doz $21.00
Hatch, Tea, No. 161....℔ doz $6.75@$7.00
Union Platform, Plain.....$2.10@2.20
Union Platform, Striped.....$2.40@2.50
Chatillon's Grocers' Trip Scales.....50%
Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Family, Turnbulls.....30&30&10
Riehle Bros.' Platform.....40%

## Scale Beams—See *Beams, Scale.*

## Scissors, Fluting.....45%

## Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.50.....30&10%
Box, 1 Handle.....℔ doz $4.00..10%
Box, 2 Handle.....℔ doz $6.00..10%
Defiance Box and Ship.....20&10%
Foot.....50&10&10%
Ship, Common.....℔ doz $3.50 net
Ship, R. I. Tool Co.....10%

## Screen Window and Door Frames—See *Frames.*

## Screw Drivers—See *Drivers, Screw.*

## Screws—

### Bench and Hand—

Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....℔ doz $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood.....25&10@25&10&5%
Hand, Grand Rapids, list.....35%
Lag, Blunt Point, list Jan. 1, 1890..75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890.....75@75&10%
Bed.....25&5%
Hand Rail, Sargent's.....66⅔&10%
Hand Rail, H. & F. Mfg. Co....70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50@50&5%
Jack Screws, P., S. & W.....35%
Jack Screws, Sargent...60&10@60&10&5%
Jack Screws, Stearns'.....40@40&10%

### Cork—

Humason & Beckley Mfg. Co..40&10@50%
Williamson's.....33⅓@33⅓&5%
Howe Bros. & Hulbert.....35%

### Machine—

Flat Head Iron.....55%
Round Head Iron.....50%

### Wood—

List January 1, 1891.

| | | |
|---|---|---|
| Flat Head Iron | 70% | Extra 10@10&10% given. |
| Round Head Iron | 65% | |
| Flat Head Brass | 70% | |
| Round Head Brass | 65% | |
| Flat Head Bronze | 70% | |
| Round Head, Bronze | 65% | |
| Rogers' Drive Screws | 82½% | |

## Scroll Saws—See *Saws, Scroll.*

## Scythes—

Grain.....40&5@40&10%
Grass.....40&10&50%

## Scythe Snaths—See *Snaths, Scythe.*

## Sets—

### Awl and Tool—

Aiken's Sets, Awls and Tools, No. 20, ℔ doz $10.00.....55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9.....45%
Millers Falls Adj. Tool Hdls. Nos. 1, $12; 2, $18.....25%
Henry's Combination Haft...℔ doz $6.50
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....30&10%
Common Brad Sets, No. 42, $10.50; No. 43, $12.50...70&10&5%

### Nail—

Square.....℔ gr. $4.00@$4.25
Round.....℔ gr. $3.25
Buck Bros.....27½%
Cannon's Diamond Point...℔ gr. $12, 20%

### Rivet—

Regular list.....50&10%

### Saw—

Stillman's Genuine....℔ doz $5.00@7.75, 40&5%
Stillman's Pattern, Hand, ℔ doz $3.25; Cross Cut, $5.25.....45&50%
Common Lever.....℔ doz $2.00, 45&50%
Morrill's No. 1, $12.00.....40&40&5%
No. 11, $15.00.....40&10&40&20%
Nos. 3 and 4, $18.00.....40&5%
No. 5, $24.00.....40&5%
Leach's..No. 0, $8.00; No. 1, $15...15@20%
Nash's.....20&10@20&10&10
Hammer, Hotchkiss.....$5.50, 10%
Hammer, Bemis & Call Co.'s new Pat., 30&5%
Bemis & Call Co.'s Lever and Spring Hammer.....30&5%
Bemis & Call Co.'s Plate.....10%
Bemis & Call Co.'s Cross Cut.....12½%
Aiken's Genuine.....$12.00, 50&10@60%
Aiken's Imitation.....$7.00, 55&5%
Hart's Pat. Lever.....20%
Disston's Star.....25%
Leopold.....40&10@50%
Atkin's Lever.....℔ doz No. 1, $6.00
Atkin's Criterion.....℔ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00.....40&10%
Avery's Saw Set and Punch.....50%
Chieftain Co.'s Superior.....℔ doz $7.00
Chieftain Co.'s Royal.....℔ doz $7.50
Crescent.....℔ doz $3.00
Lloyd's Acme.....℔ doz $15, 40&10%

## Sharpeners, Knife—

Larkins'.
Applewood Handles...℔ doz. $6.00, 40%
Rosewood or Cocobola. ℔ doz. $9.00 40%

## Shaves, Spoke—

Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.)....40&10%
Stearns'.....30&10%
Cincinnati.....25&10%
Goodell's ℔ doz. $9.00.....25%

## Shears—

American (Cast) Iron..75&10@75&10&5%
Barnard's Lamp Trimmers..℔ doz. $3.75
Tinners'.....20&2%
Seymour's, List Dec. 1881. 60&10&10@60&10&10&5%
Heinisch's, List Dec. 1881. 60&10&10@60&10&10&5
Heinisch's Tailor's Shears.....33⅓%
Cast Steel Trimmers:
First quality.....80@80&10%
Second quality.....80&10@80&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears.....10%
Clipper.....10&10%
Victor Cast Shears.....75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Davenport Cutlery Co.....60@60&10%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list.60%
Galvanic 3½ to 9 in., ℔ doz. $1.00 ℔ inch
Electric Cutlery Co.....Net

## Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw.....℔ doz. $18.00, 20&10%
Disston's Pruning Hook, ℔ doz. $12.00 20&10%
E. S. Lee & Co.'s Pruning Tools.....40%
Pruning Shears, Henry's Pat., ℔ doz. $3.75@$4.00
Henry's Pruning Shears, ℔ doz. $4.25 @$4.50
Wheeler, M. & C. Co., Combination, ℔ doz $12.00, 20%
Dunlap's Saw and Chisel, ℔ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2, $7.25
P., S. & W. Co.....60%

## Tinners', &c.—

Shears and Snips (P. S. & W.).....20@25%
Snips, J. Mallinson & Co.....33⅓%

## Sheaves—

### Sliding Door—

M. W. Co., list July, 1888....50&10@60&5%
R. & E., list Dec. 18, 1885.....55&20%
Corbin's list.....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 18, 1885.....60&2%
Moore's Anti-Friction.....50%

### Sliding Shutter—

R. & E., list Dec. 18, 1885.....60&10&2%
Sargent's list.....60&10%
Reading list.....60&10&10%

## Shells—

First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge ($7.50 list).....20&10&2%
Prize.....40&2%
Star, Club, Rival and Climax Brands... 33⅓&10&2%
Smokeless brand, 12, 10, 16 gauge, 33⅓&10&2%
Trap brand, 12 and 10 gauge..33⅓&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax. 65&2%

## Shells Loaded—

Standard List, July 19, 1890.....40&10&10@40&10&10&5%

## Ship Tools—

L. & I. J. White.....20&5%

## Shoes, Horse, Mule, &c.—

### Horse—

Burden's, Perkins', Phoenix, Diamond State & Bryden's Boss, at factory..$4.00
Bryden's Frog Pressure, at factory..$5.00

### Mule—

Add $1 ℔ keg to above prices.

### Ox Wrought—

Ton lots.....℔ ℔ 9¢
1000 ℔ lots.....℔ ℔ 9½¢
500 ℔ lots.....℔ ℔ 10¢

## Shot—

| | Ton lots | Small lots |
|---|---|---|
| Drop, up to B, 25-℔ bag... | $1.40 | $1.45 |
| Drop, up to B, 5-℔ bag.... | .35 | .35 |
| Drop, B and larger, 25-℔ bag..... | 1.65 | 1.70 |
| Drop, B and larger, 5-℔ bag..... | .40 | .40 |
| Buck and Chilled, 25-℔ bag..... | 1.65 | 1.70 |
| Buck and Chilled, 5-℔ bag | .40 | .40 |
| Dust Shot, 25-℔ bag..... | 2.00 | 2.00 |
| Dust Shot, 5-℔ bag..... | .45 | .45 |

## Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885.....20%
NOTE.—Jobbers frequently give 5&7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S.....60@60&10%
Griffith's Solid C. S. R. R. Goods.....20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15@25%
Hubbard & Co.....20@20&7½%
Lehigh Mfg. Co.....50&10%
H. M. Myers Co.....30%
Payne Pettebone & Son.....33⅓&5%
Remington's (Lowman's Pat.)30&10@40%
Rowland's Black Iron.....50&10%
Rowland's Steel.....60&5@60&10%
Terra Haute Shovel & Tool Co.....25%

## Shovels and Tongs—

Iron Head.....60&10@60&10&5%
Brass Head.....60&10&10%

## Sieves—

Mann's Tin Rim.....50&25%
Buffalo Metallic, S. S. & Co.....50&25%
Shaker (Barler's Pat.) Flour Sifters ℔ doz $2.00; ℔ gr $21.60
Electric.....℔ gr $21.00
A. & W. Sifters.....℔ doz $2.00
Hunter's.....℔ doz $2.00

## Sieves, Wooden Rim—

| | Iron. | Plated. |
|---|---|---|
| Mesh 18, Nested, ℔ doz.... | $0.80 | $1.00 |
| Mesh 20, Nested, ℔ doz.... | .95 | 1.10 |
| Mesh 24, Nested, ℔ doz.... | 1.15 | 1.25 |

## Skeins, Thimble—

Western list.....75&5@75&10%
Columbus Wrt. Steel..Special net prices
Boldbrookdale Iron Co.....60%
Seneca Falls Pattern.....60%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

## Slates—

School, by case.....50&10@50&10&10%

## Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&10&5&2%
Covert, New Patent.....50&10&5&2%
Covert, New R. E.....60&10&5&2%
Covered Spring.....60&10&10%
E. Covert's Triumph.....33⅓&5

## Snaths, Scythe—

List.....50&50&5%

## Soldering Irons—

See *Irons, Soldering.*

## Spittoons, Cuspidors, &c.

### Standard Fiberware—

Cuspidors, 8½-inch, ₱ doz., No. 5, $8; No. 5X, $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

## Spoke Shaves—

See *Shaves, Spoke.*

## Spoke Trimmers—

See *Trimmers, Spoke.*

## Spoons and Forks—

### Tinned Iron—

Basting, Cen. Stamp. Co.'s list.....70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo, S. S. & Co.....33⅓&2%

### Silver Plated—

4 months or 5% cash 30 days:
Meriden Brit. Co., Rogers.....40&15%
C. Rogers & Bros.....40&15%
Rogers & Bros.....40&15
Reed & Barton.....40&40&5%
Wm. Rogers Mfg. Co.....40, 15&5%
Simpson, Hall, Miller & Co.....40, 15&5%
Holmes & Edwards Silver Co.....40, 15&5%
L. Boardman & Son.....50&12½&%

### Miscellaneous—

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10&5%
No. 30 Silver Metal.....50&10&5%
No. 24 German Silver.....50&10&5%
No. 50 Nickel Silver.....50&5%
No. 49 Nickel Silver.....50&10&5%

Wm. Rogers Mfg. Co.:
Rogers' Silver Metal.....50&10&5%
188 Rogers' German Silver.....60&5%
226 Rogers' Nickel Silver.....50&5%
German Silver.....50&50&5%
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....50&5@50&10&5% cash
Brittannia.....60@6%&5%
Boardman's Nickel Silver, list July 1, 1891.....60&7½&5%
Boardman's Brittannia Spoons, case lots.....90&5% cash

## Springs—

### Door—

Torrey's Rod, 39 in.....₱ doz $1.20@1.25
Gray's, ₱ gr. $20.00.....35%
Bee Rod, ₱ gr., $20.00.....20@25%
Warner's No. 1, ₱ doz $2.50; No. 2, $3.30.....50@50&5%
Gem (Coil), list April 19, 1886.....10@15%
Star (Coil), list April 19, 1886...20@20&5%
Victor (Coil).....60&10@60&10&5%
Champion (Coil).....60&10@60&10&10%
Cowell's, No. 1, ₱ doz $18.00; No. 2, $15.00.....50@50&10%
Rubber, complete, ₱ doz $4.50.....55&10%
Hercules.....50@50&10%

### Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll.....60&10&10%
Cliff's Bolster Springs.....25%

## Squares—

Steel and Iron, Nickel-Plated.....80&10@80&10&10%

Try Square and T Bevels.....60&10&10%
Disston's Try Square and T Bevels.....50%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares.....25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor.....50%

## Squeezers—

### Fodder—

Blair's.....₱ doz $2.00
Blair's "Climax".....₱ doz $1.25

### Lemon—

Porcelain Lined, No. 1....₱ doz $9.00
.....25&30%
Wood, No. 2.....₱ doz $3.00, 35%
Wood, Common.....₱ doz $1.70@1.75
Dunlap's Improved.....₱ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ₱ doz.....25&10%
Jennings' Star.....₱ doz $2.50
The Boss.....₱ doz $2.50
Dean's...Nos. 1, ₱ doz $6.50; 2, $4.25; 3, $1.90; Queen, $2.50
Little Giant.....50@50&5%
King.....40&5%
Hotchkiss Straight Flash....₱ doz $12.00
Silver & Co., Glass.....₱ gro. $9.00
Manny Lemon Juice Extractor:
Standard.....₱ doz $0.75@$1.00
Improved.....₱ doz $2.00

### Standard Fiber Ware—

See *Ware, Standard Fiber.*

## Staples—

### Blind—

Barbed, ½ in. and larger.....₱ ℔ 7@7½¢
Barbed, ¾ in.....₱ ℔ 8@8½¢
Fence Staples, Galvanized, Fence Staples, Plain.....Same price as B'rb Wire SeeTrd.Rep

## Steelyards.....40&10@50%

## Stocks and Dies—

Blacksmith's:
Waterford Goods.....35%
Butterfield's Goods.....35%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates.....25@30%
Reversible Ratchet.....30%
Gardner.....25%

## Stops, Bench—

Morrill's.....₱ doz $9, 50%
Hotchkiss's.....₱ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9, 25&10&5%
McGill's, ₱ doz $3.....10%
Cincinnati.....25&10%
Terrell's Nos. 1 and 2, ₱ doz., $3; No. 3, $3.60.....50%

## Stone—

### Sythe Stones—

Pike Mfg. Co., list April, 1892.....33⅓%

### Oil Stones, &c.—

| | Price ₱ ℔ | |
|---|---|---|
| Pike Mfg. C.: | | |
| Hindostan No. 1 | .8¢ | Dis. 40@40&10% |
| Sand Stone | .5¢ | |
| Washita Stone, Extra | .50¢ | |
| Washita Stone, No. 1 | .40¢ | |
| Washita Stone, No. 2 | .30¢ | |
| Washita Slips, Extra | .80¢ | |
| Washita Slips, No. 1 | .70¢ | |
| Arkansas Stone, No. 1, 3 to 5½ in., $2.80 | | |
| Arkansas Stone, No. 1 5½ to 8 in., $3.50 | | |
| Turkey Oil Stone, 4 to 8 in | .80¢ | |
| Turkey Slips | .$2.00 | |

Lake Superior, Chase.....₱ ℔ 13¢
Lake Superior Slips, Chase.....₱ ℔ 20¢

## Stove Polish—

See *Polish, Stove.*

## Stretchers, Carpet—

Cast Steel, Polished.....₱ doz $2.25
Cast Iron, Steel Points.....₱ doz 80¢
Socket.....₱ doz $1.75
Bullard's.....25@25&10%

## Strops, Razor—

Genuine Emerson.....60@60&5%
Imitation " ..₱ doz $2.00, 30&10&5%
Torrey's.....20%
Badger's Belt and Com.....₱ doz $2.00
Lamont Combination.....₱ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89, 50%
Electric Cutlery Co.....Net

## Stuffers or Fillers, Sausage—

Miles' Challenge, ₱ doz $20.....50@50&5%
Perry....₱ doz, No. 1, $15.00; No. 0, $22.00.....50&5@50&10%
Draw Cut No. 4, each $30.00.....20%
Enterprise Mfg. Co.....20&10@30%
Silver's.....40&10%

## Sweepers, Carpet and Lawn—

### Carpet—

Bissell No. 5.....₱ doz $17.00
Bissell No. 8.....₱ doz $20.00
Bissell, Grand.....₱ doz $36.00
Standard.....₱ doz $24.00
Domestic.....₱ doz $21.00
Domestic, No. 2.....₱ doz $22.00
Grand Rapids.....₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₱ doz $15.00
Improved Parlor Queen,
Nickeled.....₱ doz $27.00
Japanned.....₱ doz $24.00
Excelsior.....₱ doz $22.00
Garland.....₱ doz $18.00
Parlor Queen.....₱ doz $24.00
Housewife's Delight.....₱ doz $15.00
Queen.....₱ doz $16.00
Queen, with band.....₱ doz $18.00
King.....₱ doz $30.00
Weed, Improved.....₱ doz $18.00
Hub.....₱ doz $16.00
Cog-Wheel.....₱ doz $16.00
Easy.....₱ doz $22.00
Monarch.....₱ doz $22.00
Goshen.....₱ doz $21.00
Ladies' Friend.....₱ doz $15.00
Advance.....₱ doz $18.00
Supreme.....₱ doz $22.00

### Lawn—

Thompson Mfg. Co.....30%

## Tacks, Brads, &c.—

List October 19, 1889. Old established straight Weights. Short Weight goods are sold at lower prices.

| | |
|---|---|
| Carpet Tacks— | |
| American, Blued | 66⅔% |
| American, Tin'd and Cop'd | 70% |
| Steel, Bright and Blued | 66⅔% |
| Steel, Tinned and Coppered | 70% |
| Swedes Iron, Blued | 72½% |
| Swedes Iron, Tinned | 75% |
| American Iron Tacks | 60% |
| Swedes Iron Tacks— | |
| S. S., Blued | 66⅔% |
| S. S., Tinned | 70% |
| Lanc., Blued | 55% |
| Lanc., Tinned | 60% |
| Gimp and Lace Tacks— | |
| S. S., Blued | 62½% |
| S. S., Tinned | 66⅔% |
| Lanc., Blued | 55% |
| Lanc., Tinned | 60% |
| Basket and Trimmers' Tacks— | |
| Lanc | 52½% |
| S. S | 60% |
| Hungarian Nails | 60% |
| Common and Patent Brads | 55% |
| Leathered Tacks | 55% |
| Brush Tacks | 60% |
| Looking Glass Tacks | 35% |
| Picture-Frame Points | 35% |
| Finishing Nails | 60% |
| Trunk and Clout Nails— | |
| Black | 62½% |
| Tinned or Coppered | 63⅔% |
| Basket Nails | 60% |
| Chair Nails | 52½% |
| Cigar Box Nails | 45% |
| Tin Capped Nails | 50% |

Extra discount 25&2%

### Miscellaneous—

Double Point.....90@90&10%
Wire Carpet Nails.....50&10%
Plymouth Rock Steel Carget Tacks...25%

### Wire Brads and Nails—

Steel-Wire Brads, R. & E. Mfg. Co.'s list 50&10%

See also *Nails, Wire.*

## Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

## Thermometers—

Tin Case.....80@80&10%

## Thimble Skeins—See *Skeins.*

## Ties, Bale—Steel.

Standard Wire, list.....50&10&5%

## Tinners' Shears, &c —

See *Shears, Tinners' &c.*

## Tinware—

Stamped, Japanned and Pieced, list Jan 20, 1887.....70&10@70&25%

## Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

## Tools—

### Coopers'—

Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves Cincinnati Tool Co.....20%

### Lumber—

Ring Peavies, "Blue Line"..₱ doz $20.00
Ring Peavies, Common.....₱ doz $18.00
Steel Socket Peavies.....₱ doz $21.00
Mall. Iron Socket Peavies...₱ doz $19.00
Cant Hooks, "blue Line"....₱ doz $16.00
Cant Hooks, Common Finish..₱ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₱ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₱ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₱ doz $12.00
Hand Spikes....₱ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₱ doz, 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₱ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₱ doz, 12 ft., $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₱ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00.
Swamp Hooks.....₱ doz $18.00

### Saw—

Atkins' Perfection.....₱ doz $12.00
Atkins' Excelsior.....₱ doz $6.00
Atkins' Giant.....₱ doz $4.00

## Tobacco Cutters—

See *Cutters, Tobacco.*

## Transom Lifters—

See *Lifters, Transom.*

## Traps—

### Game—

Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%

### Mouse and Rat—

Mouse Wood, Choker, ₱ doz holes, 9@10¢
Mouse, Round Wire.....₱ doz $1.50 10%
Mouse, Cage, Wire.....₱ doz $2.50 10%
Mouse, Catch-'em-alive..₱ doz $2.50 15%
Mouse, Bonanza.....₱ doz 0,90@$1.00
Rat, Decoy.....₱ gr $10.00, 10%
Ideal.....₱ gr $10.00
Cyclone.....₱ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₱ doz., 75¢; in full cases, ₱ doz.60@65¢
Hotchkiss Imp. Rat Killer...₱ gro $18.50
Hotchkiss New Rat Killer...₱ gro $16.50
Schuyler's Rat Killer.....₱ gro $15.00

## Triers—

Butter and Cheese.....25%

## Trimmers, Spoke—

Bonney's.....₱ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₱ doz. 55&10%
Douglas'.....₱ doz $9.00, 20%
Cincinnati.....25%

## Trowels—

Lothrop's Brick and Plastering, 20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering..25@25&5%
Peace's Plastering.....25@25&5%
Clement & Maynard's.....20&20&5%
Rose's Brick.....15&20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%
Cleves' Angle Trowel, ₱ gro, No. 1, $36; No. 2, $30; No. 3, $15. net @ 10%

## Trucks, Warehouse, &c.—

B. & L. Block Co.'s list, '82.....40%
Thompson Mfg. Co.....25%

## Tubes, Boiler—

See Pipe.

## Twine—

Flax Twine—

| | BC. | B. |
|---|---|---|
| No. 9, ¼ and ⅛ ℔ Balls | .25¢ | 31¢ |
| No. 12, ¼ and ⅛ ℔ Balls | .22¢ | 30¢ |
| No. 18, ¼ and ⅛ ℔ Balls | .20¢ | 29¢ |
| No. 24, ¼ and ⅛ ℔ Balls | .20¢ | 29¢ |
| No. 36, ¼ and ⅛ ℔ Balls | .18¢ | 28¢ |

No. 204 Mattrass, ¼ and ⅛ ℔ Balls, 52@54¢
Chalk Line, Cotton, ½ ℔ Balls.....25¢
Mason Line, Linen, ⅛ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....15½¢
3-Ply Hemp, 1 ℔ Balls.....16¢@16½¢
3-Ply Hemp, 1¼ ℔ Balls.....15¢@15½¢
Cotton Wrapping, 5 Balls to ℔..15¢@16¢
2, 3, 4 and 5 Ply Jute, ¼ ℔ Balls.....10¢
Wool.....63¢@63½¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ₱ to doz..18¢

## Vises—

Solid Box.....50&10@50&10&5%

### Parallel—

Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers' Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%
Massey Quick Action.....20@25%

### Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....66⅔&10%
Hopkins'.....₱ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%

### Miscellaneous—

Combination Hand Vises.....₱ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00
Massey Combination Pipe.....40%

### ads—Price Per M.

| | |
|---|---|
| U.M.C.&W.R.A.—B. E., 11 up.. | 68¢ |
| U.M.C.&W.R.A.—B. E., 9&10.. | 82¢ |
| U.M.C.&W.R.A.—B. E., 8..... | 96¢ |
| U.M.C.&W.R.A.—B. E., 7 | $1.10 |
| U.M.C.&W.R.A.—P. E., 11 up. | 1.15 |
| U.M.C.&W.R.A.—P. E., 9&10.. | 1.50 |
| U.M.C.&W.R.A.—P. E., 8..... | 1.70 |
| U.M.C.&W.R.A—P. E., 7..... | 1.80 |

Dis. 50@2%

Eley's B. E., 11 up.....$1.70@$1.75
Eley's P. E., 11@20.....3.00@ 3.25

## Wagon Boxes—

See *Boxes, Wagon.*

## Washer Cutters—

See *Cutters, Washers.*

## Wagon Jacks—

See *Jacks, Wagon.*

## Ware, Hollow—

### Cast Iron, Hollow—

Stove Hollow-Ware—
Ground.....60&10%
Unground.....60&10&10%
White Enameled Ware—
Maslin Kettles.....75@75&5%
Boilers and Saucepans.....60@60&5%
Tinned Boilers and S'pans.....60@60&5%
Rustless Hollow Ware.....50@50&5%
Gray Enameled Ware—
Stove.....50%
Maslin Kettles.....60&60&10%
Boilers and Saucepans.....40&5%

### Enameled—

Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware....dis 33⅓&10%

### Kettles—

Galvanized Tea-Kettles—

| Inch..... | 6 | 7 | 8 | 9 |
|---|---|---|---|---|
| Each.... | 55¢ | 60¢ | 65¢ | 75¢ |

### Standard Fiber—

| | Per Dozen. Plain. | Dec'r'd |
|---|---|---|
| Wash-Basins, 10½ in. | $2.00 | $2.25 |
| Wash-Basins, 12 in. | 2.25 | 2.75 |
| Keelers, 11¼ in. | | 4.00 |
| Cuspidors, | | 8.00 |
| Spittoons, "Daisy," 8 in. | 4.00 | 4.50 |
| Peck Measure | 4.00 | |
| Half-peck Measure | 3.50 | |

See also Pails.

### Indurated Fiber.—25%

Spittoons No. 2, ₱ doz.....$8.40
Basins, Ringed, ₱ doz., No. 2.....3.00
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₱ nest.....$7.50
Keelers Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₱ nest.....$2.90
Butter Bowls 15, 17 and 19-inch (3 pieces), ₱ nest.....$1.70
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces), ₱ set.....$1.60
See also Pails.

### Silver Plated, Hollow—

4 mo. or 5% cash in 30 days.

| | |
|---|---|
| Reed & Barton, Meriden Britannia Co., Simpson, Hall, Miller & Co., Rogers & Brother | 40&5% |
| Hartford Silver Plate Co., William Rogers Mfg. Co. | 40&5&5% |

### Washers—

Size hole..... 5-16 ⅜ ½ ⅝ to 1⅜
Washers..... 6 5 3.50¢ 3
In lots less than 200 ℔, ₱ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

### Wedges—

Iron.....₱ ℔ 3½¢
Steel.....₱ ℔ 3¾¢

### Weights, Sash—

Solid Eyes.....₱ ton $18.00@$19.00

### Well Buckets, Galvanized—

*See Buckets, Well, Galvanized.*

### Wheels, Well—

8 in., $2.25; 10 in., $2.70; 12 in., $3.25

### Wire and Wire Goods—

#### Iron—

Market,
Br. & Ann., Nos. 0 to 18.....75&10@80%
Cop'd, Nos. 0 to 18.....75&5@75&10%
Galv., Nos. 0 to 18.....70@70&10%
Tin'd. Tin'd list, Nos. 0 to 18.70@70&10%

Stone,
Br. and Ann'd, Nos. 16 to 18.....80%
Bright and Ann'd, Nos. 19 to 26...80&5%
Br. and Ann'd, Nos. 27 to 36.....82½&5%
Tinned.....

Tinned Broom Wire, 18 to 21, ₱ ℔...43¼¢
Galvanized Fence, Nos. 8 and 9.... 70&10%
Brass, list Jan. 18, 1884.....25@33⅓%
Copper, list Jan. 18, 1884.....33⅓@40%
Annealed Wire on Spools.....60%
Malin's Steel and Tin'd on Spools.....60%
Malin's Brass and Cop. on Spools.....50%
Tate's Spooled, Tin'd & Annealed..60&5%
Tate's Spooled Cop. and Brass.....50%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £, 30%
Steel Music Wire, 12 to 30....60@70¢ ₱ ℔
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

#### Bright Wire Goods—

Standard list.....80&20@85%

### Wire Cloth and Netting—

Painted Screen Cloth, good quality, ₱ 100 sq. ft., $1.40
Galvanized Wire Netting.....70&10@75%

### Wire, Barb—

See Trade Report.

### Wire Rope—

*See Rope, Wire.*

### Wrenches—

American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....50&3%
Coes' "Mechanics'".....50&10@3%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'....60&10%
Lamson & Sessions' Standard.....70&10%
P. S. & W. Agricultural..... 75&10@
Girard Agricultural..... 75&10@10%
Lamson & Sessions' Agric'l..
Bemis & Call's:
Pat. Combination.....35%
Merrick's Pattern.....35%
Briggs Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Alken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₱ doz., $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2%
Hercules.....70@70&5%
Walker's.....55&3%
Diamond Steel.....55&3%
Cincinnati Brace Wrenches.....25&10%
Tafts' Vise Wrench.....55&10&3%

### Wringers, Clothes—

Am. Wringer Co.'s list, July 1, '92...2% cash
Colby WringerCo., listSept. 1, '91...2% cash
Lovell Mfg. Co., list Jan. 1, 1892...2% cash
Peerless Mfg. Co., list Feb., 1892...2% cash

### Wrought Goods—

Staples, Hooks, &c., list March 17, 1892 80&25%

# Paints, Oils and Colors.—Wholesale Prices.

### Animal and Vegetable Oils—

| | | |
|---|---|---|
| Linseed, City, raw.. per gal. | .. @ | 40 |
| Linseed, City, boiled..... | .. @ | 43 |
| Linseed, Western, raw..... | 38 @ | 39 |
| Lard, City, Extra Winter... | 63 @ | 65 |
| Lard, City, Prime..... | 62½@ | .. |
| Lard, City, Extra No. 1..... | 50 @ | 55 |
| Lard, City, No. 1..... | 40 @ | 45 |
| Lard, Western, prime..... | 62 @ | .. |
| Cotton-seed, Crude, prime.. | .. @ | 28 |
| Cotton-seed, Crude, off grades..... | 26 @ | 27 |
| Cotton-seed, Summer Yellow, prime..... | 31½@ | 32 |
| Cotton-seed, Summer Yellow, off grades..... | 30 @ | 31 |
| Sperm, Crude..... | 68 @ | .. |
| Sperm, Natural Spring..... | 67 @ | 70 |
| Sperm, Bleached Spring.... | 72 @ | 75 |
| Sperm, Natural Winter .... | 73 @ | 76 |
| Sperm, Bleached Winter.... | 78 @ | 81 |
| Whale, Crude..... | .. @ | 45 |
| Whale, Natural Winter..... | 55 @ | 56 |
| Whale, Bleached Winter.... | 58 @ | 59 |
| Whale, Extra Bleached..... | 59 @ | 60 |
| Sea Elephant, Bleached Winter..... | 62 @ | 63 |
| Menhaden, Crude, Sound... | 30 @ | 31 |
| Menhaden, Crude, Southern | .. @ | .. |
| Menhaden, Light Pressed... | 37 @ | .. |
| Menhaden, Bleached Wter. | 38 @ | .. |
| Menhaden, Extra Bleached. | 40 @ | 42 |
| Tallow, City, prime..... | 44 @ | 45 |
| Tallow, Western, prime.... | 42½@ | 43 |
| Cocoanut, Ceylon..... | 5 @ | 5¼ |
| Cocoanut, Cochin..... | 5¾@ | 6¼ |
| Cod, Domestic..... | 38 @ | 40 |
| Cod, Foreign..... | 42 @ | 45 |
| Red Elaine..... | 34 @ | 36 |
| Red Saponified.....₱ ℔ | 4½@ | 5 |
| Bank.....per gal | 35 @ | 36 |
| Straits..... | 36 @ | 37 |
| Olive, Italian, bbls..... | 58 @ | 60 |
| Neatsfoot, prime..... | 50 @ | 55 |
| Palm, prime, Lagos.....₱ ℔ | 5¾@ | 6¼ |

### Mineral Oils—

| | | |
|---|---|---|
| Black, 29 gravity, 25 @ 30 cold test.....per gal | 7 @ | 7½ |
| Black, 29 gravity, 15 cold test..... | 7½@ | 8 |
| Black, 29 gravity, summer.. | 6 @ | 6¼ |
| Cylinder, light, filtered..... | 14 @ | 16 |
| Cylinder, dark, filtered..... | 10 @ | 13 |
| Paraffine, 23½ @ 24 gravity.. | 11½@ | 12 |
| Paraffine, 25 gravity..... | 10¾@ | 11 |
| Paraffine, 28 gravity..... | 8 @ | 8⅝ |
| Paraffine, red..... | 9 @ | 1⅜ |

### Paints and Colors—

| | | |
|---|---|---|
| Barytes, Foreign, ℔ ton..$22.00 | @ | 24.00 |
| Barytes, Amer. floated....29.00 | @ | 32.00 |
| Barytes, Amer. No. 1.....15.00 | @ | 17.00 |
| Barytes, Amer. No. 2.....13.00 | @ | 15.00 |
| Barytes, Amer. No. 3.....11.00 | @ | 12.00 |
| Blue, Celestial.....₱ ℔ | 6 @ | 8 |
| Blue, Chinese..... | 40 @ | 50 |
| Blue, Prussian..... | 25 @ | 40 |
| Blue, Ultramarine..... | 8 @ | 25 |
| Brown, Spanish..... | ½@ | 1 |
| Brown, Vandyke, Amer... | 3 @ | 3½ |
| Brown, Vandyke, English. | 6 @ | 8 |
| Carmine, No. 40, in bulk.. | 3.10 @ | .. |
| Carmine, No. 40, in boxes or barrels..... | 3.20 @ | .. |
| Carmine, No. 40, in ounce bottles..... | 4.20 @ | .. |
| Chalk, in bulk.....₱ ton.. | @ | 2.00 |
| Chalk, in bbls..₱ 100 ℔... | 33 @ | 40 |
| China Clay, English.....₱ ton. | 13.00 @ | 18.00 |
| Cobalt Oxide, prep'd..... | 9.00 @ | 11.00 |
| Cobalt Oxide, black..... lots 100 ℔. | 2.50 @ | .... |
| Cobalt Oxide, black..... less 100 ℔. | 2.65 @ | 2.90 |
| Green, Paris, in bulk..... | 13 @ | 15½ |
| Green, Paris, 170 @ 175 ℔ kegs..... | 14 @ | 16 |
| Green, Paris, small pack. | 15½@ | 22 |
| Green, Chrome, ordinary. | 6 @ | 12 |
| Green, Chrom.', pure..... | 22 @ | 25 |
| Lead, Eng., B.B. white.... | 8½@ | 10 |
| Lead, Amn. White, dry or in oil: Kegs, lots less than 500 ℔... | 7¼ @ | 7½ |
| Kegs, lots 500 ℔ to 5 tons.... | 6¾ @ | 7 |
| Kegs, lots 5 tons to 12 tons.. | 6⅝ @ | 6¾ |
| Kegs, lots 12 tons and over.. | 6½ @ | 6⅝ |
| Lead, White, in oil, 25 ℔ tin pails, add to keg price..... | .. @ | ⅛ |
| Lead, White, in oil, 12½ ℔ tin pails, add to keg price..... | .. @ | 1 |
| Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price. | .. @ | ⅛ |
| Lead, Red, bbls. and ½ bbls... | 6¼ @ | 7¼ |
| Lead, Red, kegs..... | 6¼ .. | 7⅛ |
| Litharge, kegs..... | 6¾@ | 7⅛ |
| Litharge, bbls. and ½ bbls..... | 6¾@ | 7¼ |

Terms, &c.—Lead and Litharge.—On lots of 500 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

| | | |
|---|---|---|
| Ocher, Rochelle..... | 1.35 @ | 1½ |
| Ocher, French Washed..... | 1½@ | 2½ |
| Ocher, German Washed..... | 1½@ | 3 |
| Ocher, American..... | ½@ | 1½ |
| Orange Mineral, English.... | 8½@ | 9 |
| Orange Mineral, French..... | 10 @ | 10¼ |
| Orange Mineral, German.... | 8½@ | 9 |
| Orange Mineral, American. | 8¼@ | 8¾ |
| Paris White, English Cliffstone..... | 1.00 @ | 1.15 |
| Paris White, American..... | 70 @ | 75 |
| Red, Indian, English..... | 5½@ | 7 |
| Red, Indian, American..... | 2 @ | 6½ |
| Red, Turkey..... | 9 @ | 14 |
| Red, Tuscan..... | 9 @ | 11 |
| Red, Venetian, American...₱ 100 ℔... | 1.00 @ | 1.10 |
| Red, Venetian, English..... | 1.20 @ | 1.35 |
| Sienna, Italian, Burnt and Powd. ₱ ℔..... | 4 @ | 5 |
| Sienna, Ital., Burnt Lumps. | 1½@ | 3½ |
| Sienna, Ital., Raw, Powd... | 4½@ | 5½ |
| Sienna, Ital., Raw, Lumps.. | 1¾@ | 3½ |
| Sienna, American, Raw..... | 1½@ | 1¾ |
| Sienna, American, Burnt and Powdered.....₱ ℔ | 1½@ | 1¾ |
| Talc, French..... | 1½@ | 1¾ |
| Talc, American..... | 0½@ | 1¼ |
| Terra Alba, Fr'ch, ₱ 100 ℔ | 75 @ | 80 |
| Terra Alba, English..... | 70 @ | 75 |
| Terra Alba, American No. 1 | 70 @ | 75 |
| Terra Alba, American No. 2 | 45 @ | 50 |
| Umber, Turkey, Burnt and Powdered.....₱ ℔ | 3½@ | 4 |
| Umber, Turkey Bnt. Ln..... | 2¾@ | 3 |
| Umber, Turkey, Raw and Powdered..... | 3½@ | .... |
| Umber, Turkey, R'w Lumps | 2½@ | 2¾ |
| Umber, Turkey, Bnt. Amer.. | 1¼@ | 1½ |
| Umber, Turkey, R'w Amer. | 1¼@ | 1½ |
| Yellow, Chrome..... | 10 @ | 25 |
| Vermilion, American Lead. | 11½@ | 12 |
| Vermilion, Quicks'er, bulk.. | 57 @ | .. |
| Vermilion, Quicks'er, bags.. | 58 @ | .. |
| Vermilion, Quicksilver sm'r pkgs..... | 62 @ | .. |
| Vermilion, English Import. | 85 @ | 90 |
| Vermilion, Imitation, Eng.. | 8 @ | 35 |
| Vermilion, Trieste..... | 90 @ | 92½ |
| Vermilion, Chinese..... | 92½@ | 95 |
| Whiting Common, ₱ 100 ℔ | 37½@ | 42½ |
| Whiting Gilders'..... | 45 @ | 55 |
| Zinc, American, dry....₱ ℔ | 4¼@ | 5 |
| Zinc, French, Red Seal..... | 7¾@ | .. |
| Zinc, French, Green Seal.... | 9 @ | .. |
| Zinc, French, V. M. X..... | @ | 7 |
| Zinc, Antwerp, Red Seal.... | 7¼@ | .. |
| Zinc, Antwerp, Green Seal.. | 7¾@ | .. |
| Zinc, German, L. Z. O..... | 6¾@ | 7¼ |
| Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over..... | 10¾@ | 11¼ |
| lots less than one ton..... | 11 @ | 11¾ |
| Zinc, V. M. in Poppy Oil, Red Seal..... | .. @ | .. |
| lots of 1 ton and over..... | 10 @ | 10¼ |
| lots of less than 1 ton..... | 10¼@ | 10¾ |

Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%. No discount allowed on less than bbl. lots.

### Colors in Oil—

| | | |
|---|---|---|
| Black, Drop, Frankfort..... | 25 @ | 30 |
| Black, Drop, English..... | 12 @ | 15 |
| Black, Drop, Domestic..... | 7 @ | 10 |
| Black, Lampblack, Best .... | 20 @ | 35 |
| Black, Lampblack, Common | 7 @ | 18 |
| Black, Ivory..... | 8 @ | 15 |
| Blue, Chinese..... | 35 @ | 40 |
| Blue, Prussian..... | 20 @ | 45 |
| Blue, Ultramarine..... | 12 @ | 18 |
| Brown, Vandyke..... | 7 @ | 12 |
| Green, Chrome..... | 8 @ | 13 |
| Green, Paris..... | 16 @ | 18½ |
| Sienna, Raw..... | 7 @ | 14 |
| Sienna, Burnt..... | 7 @ | 14 |
| Umber, Raw..... | 7 @ | 10 |
| Umber, Burnt..... | 7 @ | 10 |

### Putty—

| | | |
|---|---|---|
| In barrels and ½ bbls..... | .013¾@ | .014¾ |
| In tubs..... | .013¾@ | .014¾ |
| In tin cans..... | .014¾@ | .023¾ |
| In bladders..... | .017¾@ | .021¼ |

### Spirits Turpentine—

| | | |
|---|---|---|
| In regular bbls..... | .. @ | 28½ |
| In machine bbls..... | .. @ | 29 |

### Glue—

| | | |
|---|---|---|
| Low Grade.....₱ ℔ | 8 @ | 10 |
| Cabinet..... | 12 @ | 14 |
| Medium White..... | 13 @ | 15 |
| Extra White..... | 17 @ | 20 |
| French..... | 10 @ | 22 |
| English..... | 10 @ | 15 |
| Irish..... | 12 @ | .. |


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# CURRENT METAL PRICES.

## AUGUST 24, 1892.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

### IRON AND STEEL—

#### Bar Iron from Store—

| | |
|---|---|
| Common Iron: | |
| ¾ to 2 in. round and square.. 1 to 6 in. x ⅝ to 1 in... | ₩ lb 1.90 @ 2.00¢ |
| Refined Iron: | |
| ¾ to 2 in. round and square. 1 to 4 in. x ⅝ to 1½ in.... 4½ to 6 in. x ⅝ to 1 in. | ₩ lb 2.00 @ 2.10¢ |
| 1 to 6 in. x ¼ and 5-16 | ₩ lb 2.20 @ 2.30¢ |
| Rods—⅜ and 11-16 round and sq. | ₩ lb 2.10 @ 2.20¢ |
| Bands—1 to 6 x 3-16 to No. 12 | ₩ lb 2.30 @ 2.40¢ |
| "Burden Best" Iron, base price. | ₩ lb 3.00¢ |
| Burden's "H. B. & S." Iron, base price | ₩ lb 2.80¢ |
| "Ulster" | ₩ lb 3.00¢ |
| Norway Bars | 3.75 @ 4.00¢ |
| Norway Shapes | 4.50 @ 5.00¢ |

#### Merchant Steel from Store—

| | Per lb |
|---|---|
| Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots | 2¾¢ |
| Best Cast Steel, base price in small lots. | 8 ¢ |
| Best Cast Steel Machinery, base price in small lots | 5 ¢ |

#### Sheet Iron from Store—

Black—

| | Common American. | R. G. Cleaned American. |
|---|---|---|
| Nos. 10 to 16 | ₩ lb 3 @ | 3⅜¢ |
| 17 to 20 | ₩ lb 3¼ @ | 3⅜¢ |
| 21 to 24 | ₩ lb 3¼ @ | 3⅜¢ |
| 25 and 26 | ₩ lb 3⅜ @ | 3¾¢ |
| 27 | ₩ lb 3½ @ | 3⅞¢ |
| 28 | ₩ lb 3⅝ @ | 4 ¢ |
| American B. B. | ₩ lb 4¢ @ | 4½¢ |

#### Galvanized Sheet Iron—

| | B. B. | 2d qual |
|---|---|---|
| Nos. 10 to 16 | ₩ lb 4.20¢ | 4 ¢ |
| 17 to 22 | ₩ lb 4.60¢ | 4.30¢ |
| 23 to 24 | ₩ lb 4.90¢ | 4.70¢ |
| 25 to 26 | ₩ lb 5.30¢ | 5 ¢ |
| 27 | ₩ lb 5.60¢ | 5.30¢ |
| 28 | ₩ lb 6 ¢ | 5.70¢ |
| 29 to 30 | ₩ lb 7 ¢ | 6.70¢ |
| Genuine Russia, according to assortment | ₩ lb 11¼¢ @ | 11½¢ |
| Patent Planished | ₩ lb A, 10¢; | B, 9¢ |
| Craig Polished Sheet Steel | ₩ lb, 8½¢ | |

#### English Steel from Store—

| | |
|---|---|
| Best Cast | ₩ lb 15 ¢ |
| Extra Cast | ₩ lb 16½ @ 17 ¢ |
| Swaged. Cast | ₩ lb 16 ¢ |
| Best Double Shear | ₩ lb 15 ¢ |
| Blister, 1st quality | ₩ lb 12 ¢ |
| German Steel, Best | ₩ lb 10 ¢ |
| 2d quality | ₩ lb 9 ¢ |
| 3d quality | ₩ lb 8 ¢ |
| Sheet Cast Steel, 1st quality | ₩ lb 15 ¢ |
| 2d quality | ₩ lb 14 ¢ |
| 3d quality | ₩ lb 12½¢ |
| R. Mushet's "Special" | ₩ lb 48 ¢ |
| " " "Titanic" | ₩ lb 20 ¢ |

### METALS—

#### Tin—

| | Per lb |
|---|---|
| Banca, Pigs | 22½ @ 23¢ |
| Straits, Pigs | 22½¢ |
| Straits in Bars | 23½¢ |

#### Tin Plates—

Duty: 2 ¢ ₩ lb.

Charcoal Plates—Bright—

Guaranteed Plates command special prices, according to quality.

| | Per box. |
|---|---|
| Melyn and Calland Grade. IC, 10 x14 | @ $6.50 |
| " " " IC, 12 x12 | @ 6.75 |
| " " " IC, 14 x20 | @ 6.50 |
| " " " IC, 20 x28 | @ 13.00 |
| " " " IX, 10 x14 | @ 8.50 |
| " " " IX, 12 x12 | @ 8.75 |
| " " " IX, 14 x20 | @ 8.50 |
| " " " IX, 20 x28 | @ 17.00 |
| " " " DC, 12½x17 | @ 6.00 |
| " " " DX 12½x17 | @ 8.00 |
| Allaway Grade IC, 10 x14 | @ 6.00 |
| " " IC, 12 x12 | @ 6.25 |
| " " IC, 14 x20 | @ 6.00 |
| " " IC, 20 x28 | @ 12.00 |
| " " IX, 10 x14 | @ 7.50 |
| " " IX, 12 x12 | @ 7.75 |
| " " IX, 14 x20 | @ 7.50 |
| " " IX, 20 x28 | @ 15.00 |
| " " DC, 12½x17 | @ 5.50 |
| " " DX, 12½x17 | @ 7.00 |

Coke Plates—Bright—

| | |
|---|---|
| Steel Coke.—IC, 10 x 14, 14 x 20 | $5.50 @ $5.60 |
| 10 x 20 | @ 8.50 |
| 20 x 28 | 11.50 @ 12.00 |
| IX, 10 x 14, 14 x 20 | @ 7.00 |
| BV Grade.—IC, 10 x 14, 14 x 20 | @ 5.50 |

Charcoal Plates—Terne—

Guaranteed Plates command special prices according to quality.

| | |
|---|---|
| Dean Grade.—IC, 14 x 20 | @ $5.75 |
| 20 x 28 | 11.00 @ 11.25 |
| IX, 14 x 20 | @ 6.50 |
| 20 x 28 | @ 13.00 |
| Abecarne Grade.—IC, 14 x 20 | @ 5.65 |
| 20 x 28 | 10.75 @ 11 00 |
| IX 14 x 20 | @ 6 50 |
| 20 x 28 | @ 13.00 |

Tin Boiler Plates—

| | |
|---|---|
| IXX, 14 x 26 112 sheets | @ $13.35 |
| IXX, 14 x 28 112 sheets | @ 14.50 |
| IXX, 14 x 31 112 sheets | @ 16.00 |

#### Copper—

Duty: Pig, Bar and Ingot, 1½¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot—

| | |
|---|---|
| Lake | @ 12¼¢ |
| Ansonia grade Arizona | @ 11½¢ |
| Ansonia grade Casting | @ 11¼¢ |

Sheet and Bolt—

Prices adopted by the Association of Copper Manufacturers of the United States, May 19, 1892. Subject to a discount of 10 % @ 20 %, according to size of order.

| Not wider than | Not longer than | And longer than | Weights per sq. foot and prices per pound. Over 64 oz. | 32 to 64 oz. | 16 to 32 oz. | 14 to 16 oz. | 12 to 14 oz. | 10 to 12 oz. | 8 to 10 oz. | Less than 8 oz. |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 72 | | 22 | 23 | 23 | 23 | 24 | 25 | 28 | 30 |
| 30 | | 72 | 22 | 23 | 23 | 23 | 25 | 27 | 31 | .... |
| 36 | 96 | | 22 | 23 | 23 | 24 | 26 | 30 | 33 | .... |
| 36 | | 96 | 22 | 23 | 25 | 25 | 27 | 31 | 35 | .... |
| 48 | 96 | | 22 | 23 | 24 | 26 | 28 | 32 | .... | .... |
| 48 | | 96 | 22 | 23 | 25 | 27 | 29 | 33 | .... | .... |
| 60 | 96 | | 22 | 23 | 24 | 27 | 29 | 34 | .... | .... |
| 60 | | 96 | 22 | 23 | 28 | .... | .... | .... | .... | .... |
| 84 | 96 | | 23 | 24 | .... | .... | .... | .... | .... | .... |
| 84 | | 96 | 24 | 25 | .... | .... | .... | .... | .... | .... |
| Ov'r 84 in. wide | | | 25 | 27 | .... | .... | .... | .... | .... | .... |

Bolt Copper, ⅜ inch diameter and over, per pound 22¢

Circles, Segments and Pattern Sheets, 60 in. diameter and less, 3¢ ₩ lb advance over prices of sheet Copper required to cut them from.

Circles, Segments and Pattern Sheets, over 60 in. diameter, up to 96 in. diameter inclusive, 4¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Circles, Segments and Pattern Sheets, over 96 in. diameter, 5¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ lb over the foregoing prices.

Cold or Hard Rolled Copper lighter than 14 oz. ₩ square foot, 2¢ ₩ lb over the foregoing prices.

All Polished Copper over 20 in. wide, 2¢ ₩ lb advance over the foregoing prices.

#### Copper Bottoms, Pits and Flats—

| | Per lb. |
|---|---|
| 14 ounce to square foot and heavier | 26¢ |
| 12 ounce and up to 14 ounce to square foot | 27¢ |
| 10 ounce and up to 12 ounce | 29¢ |
| Lighter than 10 ounce | 32¢ |

Circles less than 8 inches diameter, 2¢ ₩ lb additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

10 % @ 20 % discount, according to size of order.

#### Copper Wash Bowl Bottoms—

Tinned ₩ lb 34¢, 10% @ 20%

#### Tinning—

Net.

| | |
|---|---|
| Tinning sheets on one side, 10, 12 and 14 x 48 each | 8¢ |
| Tinning sheets on one side, 30 x 60 each | 30¢ |
| For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each | 15¢ |
| For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each | 12¢ |
| For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.), each | 12¢ |
| Tinning sheets on one side, other sizes, per square foot | 2½¢ |
| For tinning both sides double the above prices. | |

#### Planished Brass and Copper—

Not larger than 30 x 60.

| | |
|---|---|
| 16 oz. and heavier | 24¢ ₩ lb |
| 14 oz. | 25¢ ₩ lb |
| 12 oz. | 27¢ ₩ lb |

#### Seamless Brass Tubes—

July 6, 1892. Net.

| O. G. | N. G. | ⅜ | ½ | ⅝ | ¾ | ⅞ | 1 | 1¼ |
|---|---|---|---|---|---|---|---|---|
| 8-14 | 6-12 | 32 | 28 | 25 | 24 | 23 | 22 | 19 |
| 15 | 13 | 33 | 28 | 26 | 25 | 24 | 23 | 20 |
| 16 | 14 | 34 | 29 | 27 | 26 | 25 | 24 | 20 |
| 17 | 15 | 35 | 30 | 28 | 25 | 26 | 25 | 21 |
| 18 | 16 | 37 | 31 | 29 | 27 | 26 | 25 | 22 |
| 19 | 17 | 38 | 32 | 30 | 29 | 28 | 27 | 24 |
| 20 | 18-19 | 39 | 34 | 32 | 31 | 30 | 29 | 26 |
| 21 | 20 | 41 | 36 | 34 | 33 | 32 | 31 | 29 |
| 22 | 21 | 43 | 37 | 36 | 34 | 33 | 32 | 31 |
| 23 | 22 | 45 | 39 | 37 | 36 | 35 | 34 | 34 |
| 24 | 23 | 48 | 41 | 39 | 38 | 36 | 35 | 36 |
| 25 | 24 | 51 | 44 | 41 | 40 | 39 | 38 | 40 |

Copper, Bronze and Gilding Tube, 3¢ ₩ lb additional.

*Brazed Brass Tubing.* (To No. 20 inclusive.)

| | |
|---|---|
| Above 5-16 inch to 3 inch, inclusive | 35¢ |
| Plain, above 3 inch | 45¢ |
| Plain, 5-16 inch | 45¢ |
| Plain, ¼ inch | 60¢ |
| Plain, 3-16 inch | $1.00 |
| Plain, ⅛ inch | $1.50 |
| Fancy Tubing, Brass, to No. 20, inclusive | 43¢ ₩ lb |
| Bronze Tubing, 3¢ ₩ lb more than Brass. | |
| Discount from list | 30 @ ..% |

#### Roll and Sheet Brass—

*(Brown & Sharpe Standard Gauge)*

| Common High Brass: Wider than and including | in. 2 | in. 10 | in. 12 | in. 14 | in. 16 | in. 18 | in. 20 | in. 22 | in. 24 |
|---|---|---|---|---|---|---|---|---|---|
| To No. 20, inclusive | .21 | .22 | .23 | .25 | .27 | .29 | .31 | .33 | |
| Nos. 21, 22, 23 and 24 | .22 | .23 | .24 | .26 | .28 | .30 | .32 | .34 | |
| Nos. 25 and 26 | .22½ | .23½ | .24½ | .27 | .29 | .31 | .33 | .35 | |
| Nos. 27 and 28 | .23 | .24 | .25 | .28 | .30 | .32 | .34 | .36 | |

| Common High Brass: Wider than and including | in. 24 | in. 26 | in. 28 | in. 30 | in. 32 | in. 34 | in. 36 | in. 38 | in. 40 |
|---|---|---|---|---|---|---|---|---|---|
| To No. 20, inclusive | .36 | .39 | .42 | .46 | .50 | .55 | .60 | .65 | |
| Nos. 21, 22, 23 and 24 | .37 | .40 | .43 | .47 | .51 | .56 | .61 | .68 | |
| Nos. 25 and 26 | .38 | .41 | .44 | .48 | .52 | .57 | .63 | .71 | |
| Nos. 27 and 28 | .39 | .42 | .45 | .49 | .53 | .58 | .65 | .75 | |

Discount from List 10 % to 25 %.

#### Brass and Copper Wire—

List January 17, 1884.

| Numbered by Stubs' gauge. | Soft & hard high brass. | Spring high brass. | Low brass. | Copper. |
|---|---|---|---|---|
| All Nos. to No. 16, inclusive | $0.22 | $0.24 | $0.26 | $0.30 |
| No. 17 and No. 18 | .23 | .25 | .27 | .31 |
| No. 19 and No. 20 | .24 | .26 | .28 | .32 |
| No. 21, or 0.032 diameter | .25 | .27 | .29 | .33 |

Discount 10 % to 25 %.

*Fine Numbers.*

| Numbered by London gauge. | Brass. | Spring high brass. | Low brass. | Copper. |
|---|---|---|---|---|
| No. 22 | $0.26 | $0.28 | $0.30 | $0.34 |
| No. 23 | .28 | .30 | .32 | .36 |
| No. 24 | .30 | .32 | .34 | .38 |
| No. 25 | .32 | .34 | .36 | .40 |
| No. 26 | .35 | .37 | .39 | .43 |
| No. 27 | .38 | .40 | .42 | .46 |
| No. 28 | .42 | .44 | .46 | .51 |
| No. 29 | .45 | .47 | .49 | .54 |
| No. 30 | .48 | .50 | .52 | .62 |
| No. 31 | .51 | .53 | .55 | .67 |
| No. 32 | .55 | .57 | .59 | .73 |
| No. 33 | .59 | .61 | .63 | .82 |
| No. 34 | .64 | .66 | .68 | .95 |
| No. 35 | .70 | .72 | .74 | 1.30 |
| No. 36 | .76 | .78 | .80 | 1.50 |
| No. 37 | 1.00 | 1.02 | 1.04 | 1.70 |
| No. 38 | 1.30 | 1.32 | 1.34 | 2.00 |
| No. 39 | 2.00 | 2.02 | 2.00 | 3.25 |
| No. 40 | 2.60 | 2.62 | 2.60 | 5.75 |

— % discount.

Spring Wire, 2¢ ₩ lb advance.

#### Copper Belt and Hose Rivets and Burrs—

| | Per lb. | | Per lb. |
|---|---|---|---|
| No. 5 | 49¢ | No. 11 | 56¢ |
| No. 6 | 49¢ | No. 12 | 58¢ |
| No. 7 | 49¢ | No. 13 | 60¢ |
| No. 8 | 50¢ | No. 14 | 65¢ |
| No. 9 | 52¢ | No. 15 | 70¢ |
| No. 10 | 54¢ | | |

60 % @ 5 % discount.

#### Tobin Bronze—Rods.

*Drawn Rods for Bolts, Forgings, &c.*

| | |
|---|---|
| ¼ to ⅜ inch inclusive | 18¢ ₩ lb |
| Over ⅜ to 3½ inches inclusive | 17¢ ₩ lb |
| Over 3½ to 5 inches inclusive | 18¢ ₩ lb |

*Piston Rods, Finished True, Smooth and Straight.*

| | |
|---|---|
| ¼ to ⅜ inch inclusive | 19¢ ₩ lb |
| Over ⅜ to 2 inches inclusive | 18¢ ₩ lb |
| Over 2 to 3½ inches inclusive | 19¢ ₩ lb |
| Over 3½ to 5 inches inclusive | 20¢ ₩ lb |

#### Spelter—

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

| | |
|---|---|
| Western Spelter | 5¼¢ |
| Bertha (pure) | 8¾¢ |

#### Zinc—

Duty: Sheet, 2½¢ ₩ lb.

| | |
|---|---|
| 600 lb casks | 7 ¢ |
| Per lb | 7½¢ |

#### Lead—

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 2½¢ ₩ lb.

| | |
|---|---|
| American Pig | 4½¢@4⅝¢ |
| Bar | 5¢@5½¢ |
| Pipe, subject to discount 20% | 6½¢ |
| Tin-Lined Pipe, subject to discount 20% | 15¢ |
| Block Tin Pipe, subject to discount 20% | 37½¢ |
| Sheet, subject to discount 20% | 7¢ |

Old Lead in exchange, 3½¢ ₩ lb.

#### Solder—

| | |
|---|---|
| ⅛ @ ½ (Guaranteed) | 13½¢ @ 15¢ |
| No. 1 | 11¾¢ @ 12½¢ |

Prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

#### Antimony—

| | |
|---|---|
| Cookson | ₩ lb 15 @ 15½¢ |
| Hallett's | " @ 12 ¢ |

#### Aluminum—

*Prices per Ton.*

Duty: 15¢ ₩ lb.

| | |
|---|---|
| Over 98% pure | ₩ lb .75 |
| 94% @ 98% pure | ₩ lb .65 |

#### Old Metals—

*Prices Paid in New York.*

| | |
|---|---|
| Heavy Copper | ₩ lb 10 ¢ |
| Light and Tinned Copper | ₩ lb 9 ¢ |
| Heavy Brass | ₩ lb 7 ¢ |
| Light Brass | ₩ lb 6 ¢ |
| Lead | ₩ lb 3½¢ |
| Tea Lead | ₩ lb 3½¢ |
| Zinc | ₩ lb 2½¢ |
| No. 1 Pewter | ₩ lb 14 ¢ |
| No. 2 Pewter | ₩ lb 7 ¢ |
| Wrought Scrap Iron | ₩ gross ton $17.00 |
| Heavy Cast Scrap | ₩ gross ton 10.00 |
| Stove Plate Scrap | ₩ gross ton 7.00 |
| Burnt Iron | ₩ gross ton 5 00 |